



User's Manual

Rainier-4x1V Series (IP / RS-232)

Revision 1.5
(March, 2011)

WARNING

Do not attempt to disassemble your Rainier device. Doing so may void your warranty. There are no serviceable parts inside. Please refer all servicing to qualified personnel.

TRADEMARKS

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TECHNICAL SUPPORT

If you have any questions regarding the information provided in this guide, call our technical support help line at 425-885-3863, or our toll free help line at 1-877-AVI-TECH. You can also email us at support@avitechvideo.com



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Warranty

Avitech International Corporation (herein after referred to as “Avitech”) warrants to the original purchaser of the products manufactured in its facility (the “Product”), that these products will be free from defects in material and workmanship for a period of one (1) year or fifteen (15) months from the date of shipment of the Product to the purchaser. There is a three (3) months grace period between shipping and installation.

If the Product proves to be defective during the one (1) year warranty period, the purchaser’s exclusive remedy and Avitech’s sole obligation under this warranty is expressly limited, at Avitech’s sole option, to:

- (a) repairing the defective Product without charge for parts and labor; or
- (b) providing a replacement in exchange for the defective Product; or
- (c) if after a reasonable time is unable to correct the defect or provide a replacement Product in good working order, then the purchaser shall be entitled to recover damages subject to the limitation of liability set forth below.

LIMITATION OF LIABILITY: AVITECH’S LIABILITY UNDER THIS WARRANTY SHALL NOT EXCEED THE PURCHASE PRICE PAID FOR THE DEFECTIVE PRODUCT. IN NO EVENT SHALL AVITECH BE LIABLE FOR ANY INCIDENTAL, SPECIAL, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOSS OF PROFITS FOR ANY BREACH OF THIS WARRANTY.

If Avitech replaces the defective Product with a replacement Product as provided under the terms of this Warranty, in no event will the term of the warranty on the replacement Product exceed the number of months remaining on the warranty covering the defective Product. Equipment manufactured by other suppliers and supplied by Avitech carries the respective manufacturer’s warranty. Avitech assumes no warranty responsibility either expressed or implied for equipment manufactured by others and supplied by Avitech.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ALL OF WHICH ARE EXPRESSLY DISCLAIMED.

This Hardware Warranty shall not apply to any defect, failure, or damage:

- (a) caused by improper use of the Product or inadequate maintenance and care of the Product;
- (b) resulting from attempts by other than Avitech representatives to install, repair, or service the Product;
- (c) caused by installation of the Product in a hostile operating environment or connection of the Product to incompatible equipment; or
- (d) caused by the modification of the Product or integration with other products when the effect of such modification or integration increases the time or difficulties of servicing the Product.

Any Product which fails under conditions other than those specifically covered by the Hardware Warranty, will be repaired at the price of parts and labor in effect at the time of repair. Such repairs are warranted for a period of ninety (90) days from date of reshipment to customer.

Extended Warranty Options

Avitech offers OPTIONAL Extended Warranty plans that provide continuous coverage for the Product after the expiration of the Warranty Period. Contact an Avitech sales representative or details on the options that are available for your Avitech equipment.

Services and Repairs Outside the Warranty Period

Avitech make its best offer to repair products that is outside the warranty period, provided the product has not reached its end of life (EOL). The minimum charge for such repair excluding shipping and handling is \$200 (US dollars).

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Regulatory Information

NOTE: Marking labels located on the exterior of your device indicate the regulations that your model complies with. Please check the marking labels on your device and refer to the corresponding statements in this chapter. Some notices apply to specific models only.

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Avitech is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

European Union CE Marking and Compliance Notices

Statements of Compliance

English

This product follows the provisions of the European Directive 1999/5/EC.

Danish

Dette produkt er i overensstemmelse med det europæiske direktiv 1999/5/EC.

Dutch

Dit product is in navolging van de bepalingen van Europees Directief 1999/5/EC.

Finnish

Tämä tuote noudattaa EU-direktiivin 1999/5/EC määräyksiä.

French

Ce produit est conforme aux exigences de la Directive Européenne 1999/5/EC.

German

Dieses Produkt entspricht den Bestimmungen der Europäischen Richtlinie 1999/5/EC.

Greek

Το προϊόν αυτό πληροί τις προβλέψεις της Ευρωπαϊκής Οδηγίας 1999/5/EC.

Icelandic

Þessi vara stendst reglugerð Evrópska Efnahags Bandalagsins númer 1999/5/EC.

Italian

Questo prodotto è conforme alla Direttiva Europea 1999/5/EC.

Norwegian

Dette produktet er i henhold til bestemmelsene i det europeiske direktivet 1999/5/EC.

Portuguese

Este produto cumpre com as normas da Diretiva Europeia 1999/5/EC.

Spanish

Este producto cumple con las normas del Directivo Europeo 1999/5/EC.

Swedish

Denna produkt har tillverkats i enlighet med EG-direktiv 1999/5/EC.

Australia and New Zealand C-Tick Marking and Compliance Notice

Statement of Compliance

This product complies with Australia and New Zealand's standards for radio interference.



Preface

Welcome

Congratulations on purchasing this Avitech Rainier-4x / 4x1V / 8x1V / 12x1V / 16x1V!

Building on the popularity of the Rainier series, Avitech's Rainier-4x / 4x1V / 8x1V / 12x1V / 16x1V series multi-image processor has four auto-sensing HD-SDI / SD-SDI and composite video inputs as well as high quality DVI output that goes up to 1920×1200 resolution. Unlike quad-split modules, the Rainier allows for flexible sizing and repositioning of windows. The processor also displays embedded audio meter, alarms, tally, and an aspect ratio marker.

Up to four Rainier processors can be cascaded in a single display.

About this Manual

This manual contains comprehensive information about your Avitech Rainier module in order to help you operate the device.

Throughout the manual, the following conventions are used to distinguish elements of text.

NOTE: provides additional hints or information that requires special attention.

CAUTION: identifies important information which, if not followed, may result in loss of data or damage to your device.

OPTION: identifies when a process or procedure can be accomplished using alternative methods.

Any name of a menu, command, icon or button that you can see on the screen is shown in a bold typeset. For example:

On the **Start** menu, select **Settings**.

1

Getting Started

This chapter introduces you to the features, specifications, and external components of your Avitech Rainier module. It also guides you through the process of setting up your Rainier for use.

NOTE: Depending on the model you purchased, the cabinet color and the look of the accessories may be different from the ones shown in this manual.

1.1 Package Contents

After unpacking the shipping carton, you should find these standard items:



Avitech Rainier



DVI-to-VGA Adapter



RS-485 Cascading Cable
(optional – when purchasing 2 or more Rainiers)



DVI Cascading Cable
(optional – when purchasing 2 or more Rainiers)



RJ-50 GPI Terminal Block



Standard Power Cord (US customers only)



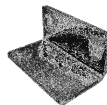
Utility Disc (contains software and the user's manual)



Set of screws (optional)



Blank Panel (already installed on Rainier upon order for assembly onto rack mount)



Ear (already installed on Rainier upon order for assembly onto rack mount)



Keypad (optional)



Keypad Converter Y-cable (optional)



Avitech TACP
(Touch-screen Avitech Control Panel – optional)

1.2 Product Features

Model	DVI / VGA / YPbPr Input	Video Input	Maximum Output Resolution
Rainier-4a	N/A (not applicable)	4 CVBS	1440×900
Rainier-4a1V	1	4 CVBS	1920×1200
Rainier-8a1V	1	8 CVBS	1920×1200
Rainier-12a1V	1	12 CVBS	1920×1200

Model	DVI / VGA / YPbPr Input	Video Input	Maximum Output Resolution
Rainier-16a1V	1	16 CVBS	1920×1200
Rainier-4d	N/A	4 SD-SDI/ CVBS	1440×900
Rainier-4d1V	1	4 SD-SDI/ CVBS	1920×1200
Rainier-8d1V	1	8 SD-SDI/ CVBS	1920×1200
Rainier-12d1V	1	12 SD-SDI/ CVBS	1920×1200
Rainier-16d1V	1	16 SD-SDI/ CVBS	1920×1200
Rainier-4U	N/A	4 HD/SD-SDI/ CVBS	1920×1200
Rainier-4U1V	1	4 HD/SD-SDI/ CVBS	1920×1200
Rainier-8U1V	1	8 HD/SD-SDI/ CVBS	1920×1200
Rainier-12U1V	1	12 HD/SD-SDI/ CVBS	1920×1200
Rainier 16U1V	1	16 HD/SD-SDI/ CVBS	1920×1200

- Automatic sensing of HD-SDI / SD-SDI and composite analog input.
- Computer graphic input: DVI-I input resolution up to 1920×1200 (WUXGA).
- Minimal processing delay of less than one frame except for full screen display.
- Automatic detection of aspect ratio – 16:9 and 4:3.
- Up to 26 internal configuration presets.
- Embedded audio meter that allows any mono or stereo audio to be monitored.
- On-screen display of labels, borders, and video alarms.

- Communication control via IP or RS-232 connection.
- Compatibility with Galaxy software for configuration, monitor layout, and multiple-system control.
- Avitech ASCII Protocol (AAP) support.
- Compatible with optional Touch-Screen Avitech Control Panel (TACP) via the ACP user interface.

Specifications

Parts		Specifications
Inputs	Video	Automatic sensing via BNC HD-SDI (1080i/59.94, 1080i/60, 1080i/50, 720p/59.94, 720p/60, 720p/50) SD-SDI (NTSC/525i, PAL/625i, 525p/59.94, 625p/50) Composite analog (NTSC, PAL) Number of inputs: 4
	DVI-I	Automatic detection Input resolution: up to 1920×1200 (WUXGA) For background display or for cascading multiple modules together Number of input: 1
	Audio	Display 2 channels of embedded audio per HD-SDI audio
Output		Resolution up to 1920×1200 (WUXGA) via DVI-I connector Number of output: 1
GPI		8 inputs
Data input / output	Serial port	Number of port: 1 Baud rate: up to 57600 bps RS-232 / 422 supporting TSL (one RS-422 to RS-232 converter may be needed for each connection to an Avitech module)
	Ethernet	Network Type: 100Base-T Number of port: 1 RJ-45
	RS-485	Number of ports: 2
Power supply		Less than 30 watts 100 – 240 V, 50 / 60 Hz (external) 12 V DC
Housing		Metal
Dimension (W×D×H)	1/2 rack	209.6×271.8×44.5 mm (8.25×10.7×1.75 inch) Two can be mounted side-by-side in 1 RU
Weight		2.3 kg (5 lbs)
Environment	Temperature	Operating: 0 °C (32 °F) to 40 °C (104 °F) Storage: –10 °C (–4 °F) to 50 °C (122 °F)
	Humidity	0 % to 80 % relative, non-condensing
Safety regulations		FCC / CE / C-Tick, Class A

Operating Features

- Standalone operation with control via RS-232 cable or IP connection, or multiple operations including up to four Rainier modules connected via DVI cascade.
- Two Rainier modules can fit in a single rack unit space, providing up to eight video inputs and one multimedia input.
- Models with SD-SDI inputs can de-embed one stereo audio pair for meter displays and each audio source can be outputted via AES audio.
- Most models have a single scalable DVI input for use with VGA / DVI / component inputs.
- Computer (DVI-I) input can be in any size / position.
- An RJ-50 GPI terminal block adapter is provided for tally or loading presets.
- Up to 26 presets / configurations can be saved and recalled from the module's Flash EEPROM.
- The Rainier series is not compatible with MCC-8004 or VCC-8000 series modules.

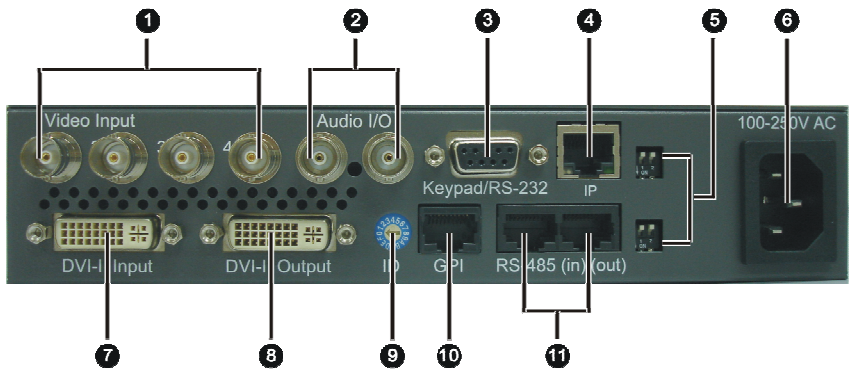
1.3 Identifying the Front Hardware Component



IMPORTANT for Rainier-4a / 4d and 4a1V / 4d1V: the HD label is not printed on the front panel.

Ref	Component	Description
①	Power LED	Lights green when the Rainier is powered on.

1.4 Identifying the Rear Hardware Components



IMPORTANT: Refer to the next table’s “Description” column for availability of the ports on your particular model.

Ref	Label / Component	Description
❶	Video Input 1 / 2 / 3 / 4	BNC connectors for HD / SD-SDI / composite video inputs.
❷	Audio I/O	AES connectors for audio cascade. NOTE: These ports are not available for the Rainier-4a and 4a1V.
❸	Keypad/RS-232	RS-232 connector for signal from the computer or connection to an optional TACP (Touch-Screen Control Panel) or numerical Simplified Control Panel (SCP) keypad via optional keypad converter Y-cable.
❹	IP	Ethernet connector for connecting to a computer and using the Galaxy software to perform setup on the Rainier.
❺	DIP switches	For updating the firmware or for reverting the Rainier back to the factory-default setting.
❻	100-250V AC	Power jack for connecting the AC power cord.

Ref	Label / Component	Description
7	DVI-I Input	DVI-I connector for multimedia input and cascading from other Rainier devices. NOTE: This port is not available for the Rainier-4a, 4d, and 4U.
8	DVI-I Output	DVI-I connector for output to monitor display and cascading to other Rainier devices.
9	ID	Rotary dial to assign unique addresses in systems with two or more units.
10	GPI	RJ-50 connector for GP input / output.
11	RS-485 (in) (out)	RS-485 connectors for serial cascading input / output.

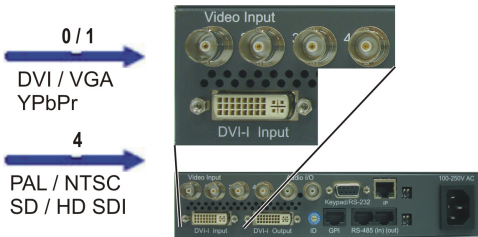
1.5 Getting Your Rainier Ready for Use

Basic Hardware Connections

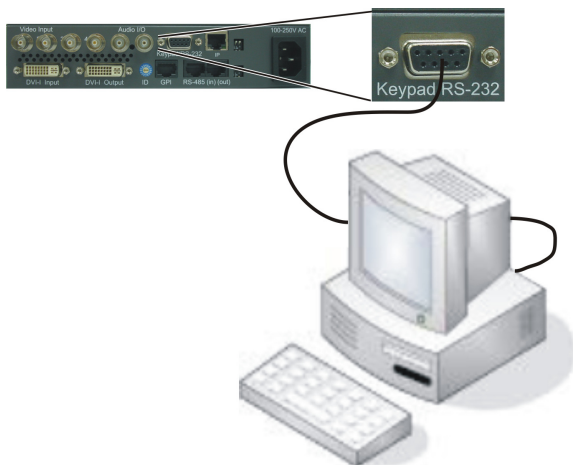
Perform the following steps to get your Rainier up and running:

NOTE: The steps outlined next depend on the type of configuration you wish to set up.

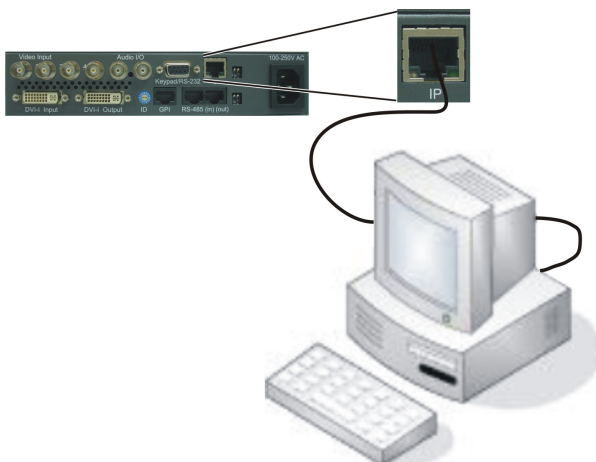
- 1. Connect up to four BNC cables to the four **Video Input 1 / 2 / 3 / 4** ports for HD / SD-SDI / composite video inputs.
Or, connect one VGA / DVI cable to the **DVI-I Input** port for VGA / DVI video input.



2. Connect the RS-232 cable to the **Keypad/RS-232** port for signal from the computer running Galaxy.



OPTION: Or connect the Ethernet cable to the **IP** port to establish a connection to the computer running Galaxy.

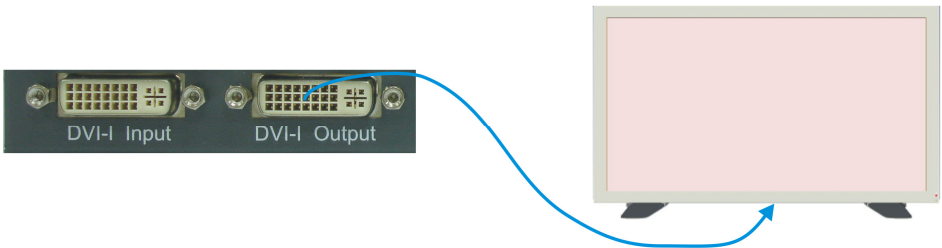


3. Connect the DVI-I cable to the **DVI-I Input** port for video input to the Rainier.



| NOTE: Skip this step for Rainier-4a / 4d / 4U models.

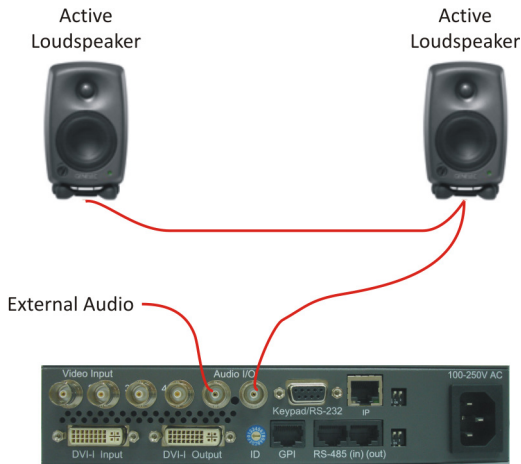
4. Connect the DVI-I cable to the **DVI-I Output** port for video output to the monitor display.



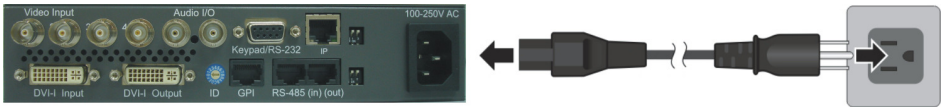
5. Make sure to assign a unique address to your Rainier **ID** rotary dial when connecting to systems with two or more units.



6. Connect up to two audio cables to the two AES **Audio I/O** ports for audio cascade.

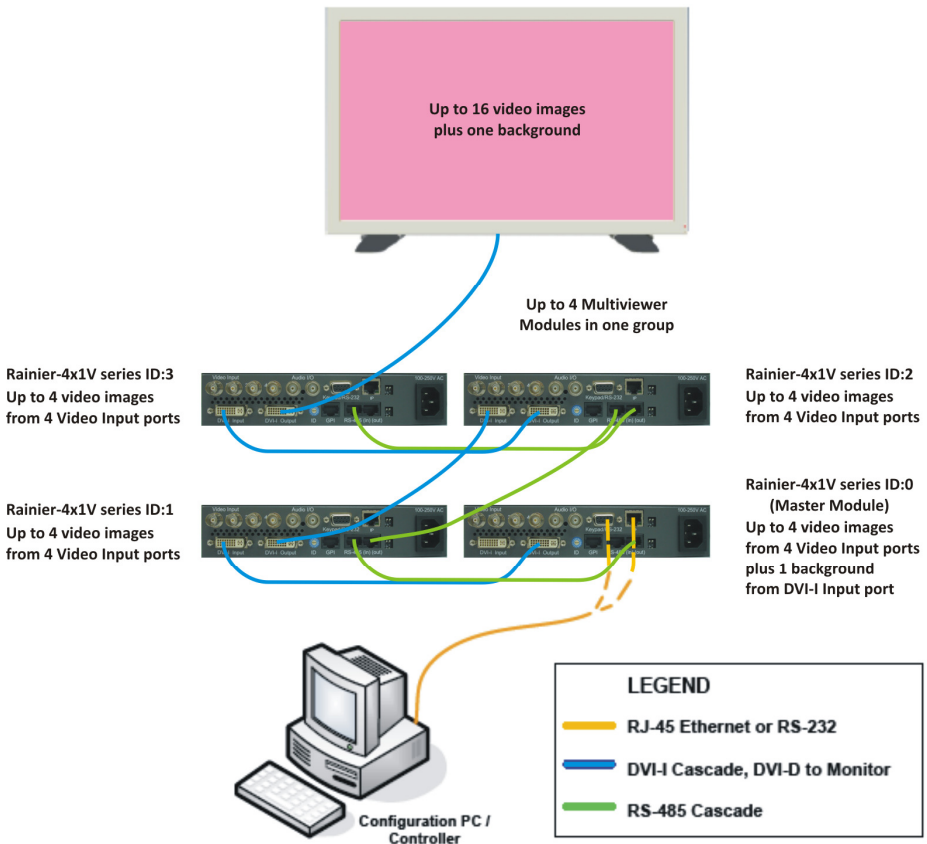


7. Connect the AC power cord to the **100-250V AC** power jack and make sure that power is available.



Cascading Modules

Avitech multiviewer modules can be operated independently as a standalone unit or cascaded together to create a larger system, allowing the combined inputs of all the cascaded modules to be displayed on one output monitor display. Cascading refers to the additive flow of processed video and data through each module. The following figure shows a sample cascading diagram.



NOTE: Video cascading not applicable for Rainier-4a, 4d, and 4U models.

The following characteristics define cascading:

- Up to four Rainier modules can be combined into one single Group.

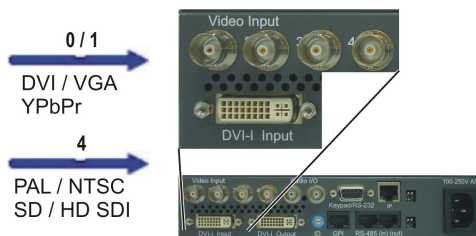
- Cascade modules together to increase the number of source signal windows that can be displayed on one monitor display.
- Each module in the cascade may contribute four source windows and a clock or a logo that are “placed over” a DVI background.
- Cascading does not add processing delay since the “DVI background” timing is zero, regardless of the number of cascaded modules.

To cascade Avitech Rainier modules, perform the following steps:

| NOTE: The steps outlined next depend on the type of configuration you wish to set up.

1. Connect up to four BNC cables to the four **Video Input 1 / 2 / 3 / 4** ports for HD / SD-SDI / composite video inputs.
OR,

Connect one VGA / DVI cable to the **DVI-I Input** port for VGA / DVI video input (**DVI-I Input** port is not available for the Rainier-4a / 4d / 4U models).



2. The modules in the cascade are differentiated from each other by using the rotary **ID** switch on the rear panel. The Master (first) module in a Group should have the rotary **ID** set to **0**. The next module should be set to **1**, and so on, up to **15** (increase in increments of 1 for every module added to the Group). The modules will be seen and controlled as **ID:1**, **ID:2**, etc, in the Galaxy software.



To display video overlay from each module, all units must be connected to each other via male-to-male short DVI cascading cable.

To connect them in this manner, take a DVI cascading cable and connect one end to the **DVI-I Output** port on the Master (first) module (N), and the other end to the **DVI-I Input** port of the next module in the chain (N+1).

Take another DVI cascading cable and connect one end to the **DVI-I Output** port on the second module (N+1), and the other end to the **DVI-I Input** port of the next module in the chain (N+1+1).

Take another DVI cascading cable and connect one end to the **DVI-I Output** port on the third module (N+1+1), and the other end to the **DVI-I Input** port of the last module in the chain (N+1+1+1).

Rainier-4x1V series ID:3



Rainier-4x1V series ID:2

Rainier-4x1V series ID:1



Rainier-4x1V series ID:0
(Master Module)

NOTE: The analog part of the **DVI-I Input** port is bypassed (relays) in case the module has no power or is defective. A powered down or a defective unit in the chain will not compromise the whole system; other modules in the chain will not be inhibited to display properly.

3. Module interface is cascaded through an RJ-45 (RS-485) connection, which is used to loop communication from one module to the next. The data stream carries control and configuration information. Take the RS-485 cascading cable and connect one end to the **RS-485 (out)** of the Master (first) module (N) and the other end to **RS-485 (in)** of the next module up (N+1).

Rainier-4x1V series ID:3



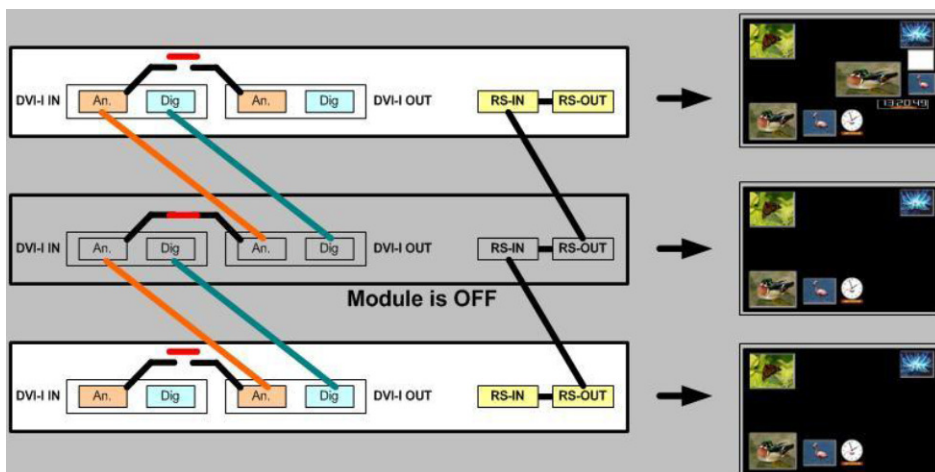
Rainier-4x1V series ID:2

Rainier-4x1V series ID:1



Rainier-4x1V series ID:0
(Master Module)

NOTE: Control cascade (RS-485) is “passive,” and will pass through modules that are not powered or defective. A powered down (middle module on the next figure) or a defective unit in the chain will not compromise the whole system, and other modules in the chain will continue to display properly.



4. The output from the **DVI-I Output** port on the last module cascaded should go to the group output monitor display via single-link DVI-D cable (you may need to use a DVI to VGA adapter if you are connecting to a display with VGA input).



Rainier-4x1V series ID:3



Rainier-4x1V series ID:2



Rainier-4x1V series ID:1



Rainier-4x1V series ID:0
(Master Module)



5. Connect a DB9 straight-through serial cable from the computer to the Master module's **RS-232** port.
OR,

Connect a straight-through or a cross-over RJ-45 cable from the computer to the **IP** port on the Master module.

Rainier-4x1V series ID:3



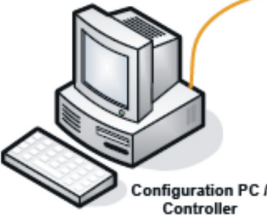
Rainier-4x1V series ID:2



Rainier-4x1V series ID:1



Rainier-4x1V series ID:0
(Master Module)



6. If the computer application uses multimedia input, connect one end of the DVI cable to the computer's DVI port and the other end to the **DVI-I Input** port of the Master module.

Rainier-4x1V series ID:3



Rainier-4x1V series ID:2



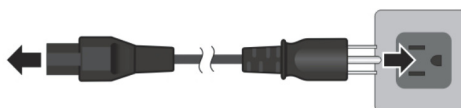
Rainier-4x1V series ID:1



Rainier-4x1V series ID:0
(Master Module)



7. Connect the power cables to the Rainier(s) and make sure that power is available.



1.6 Using the Galaxy Configuration Software

The Galaxy configuration software is designed for all Avitech multiviewer modules. This program requires no installation, and should not be run from a “read-only” device, such as an optical disc. This section introduces the Galaxy software for setting up your system.

NOTE: Make sure the Rainier-4U series module is powered on and properly connected to your computer (see previous section) before launching the Galaxy software.

Connection Methods

There are two ways your Rainier-4U series can connect to the controlling computer:

- Use the network cable (IP address) to connect (refer to the next section “Setting Up Static IP”).
- Use the serial cable to connect (refer to p. 27, “Setting Up COM Port”).

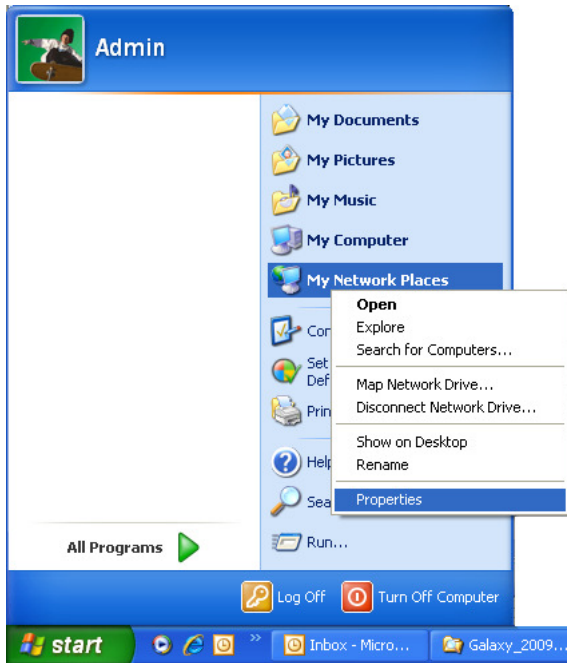
Setting Up Static IP

Before connecting the computers / controllers network to the Rainier-4U series modules, computers with a DHCP LAN connection will need to be changed to a static IP in a similar range as the Avitech Rainier-4U series modules. Or, change the IP address of the Rainier-4U series Master module to a similar range as the controlling computer.

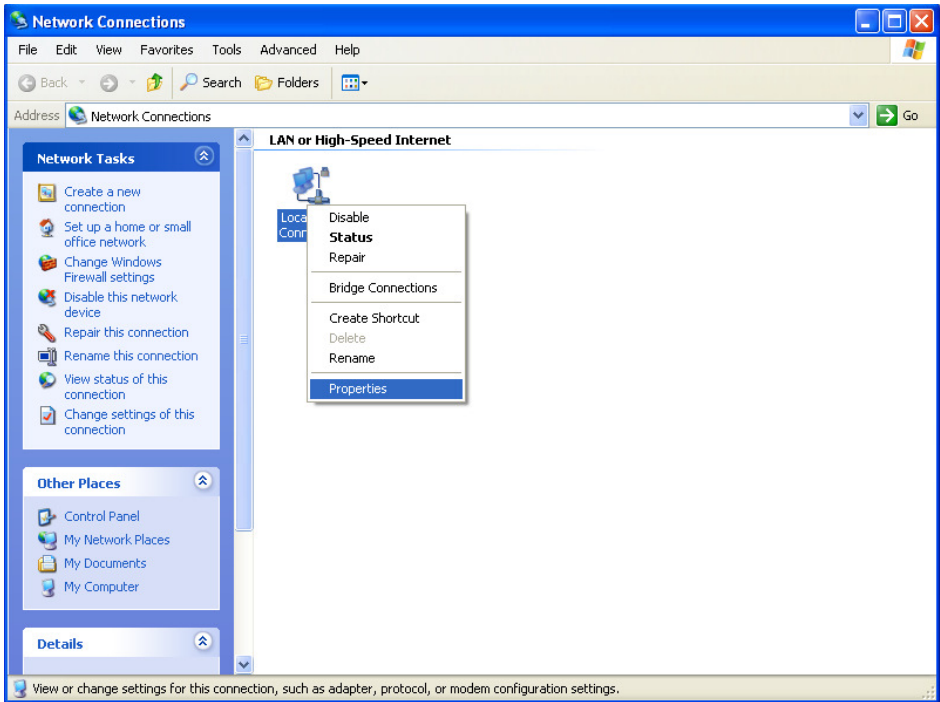
NOTE: The factory default IP for all Avitech modules is 210.100.100.151.

OPTION 1: Change the IP Address of the Controlling Computer

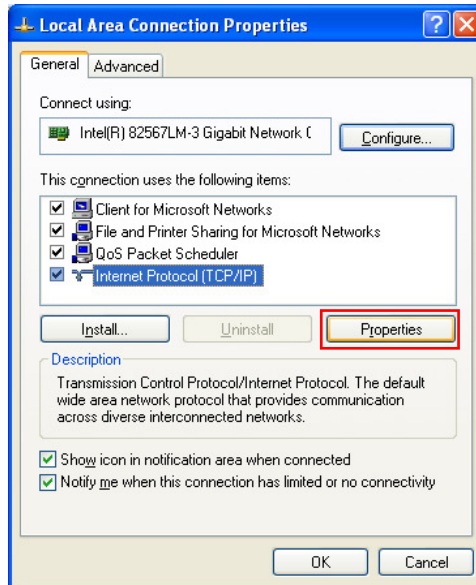
1. On your computer, click **Start**, and then right-click the mouse on **My Network Places**, and click **Properties**.



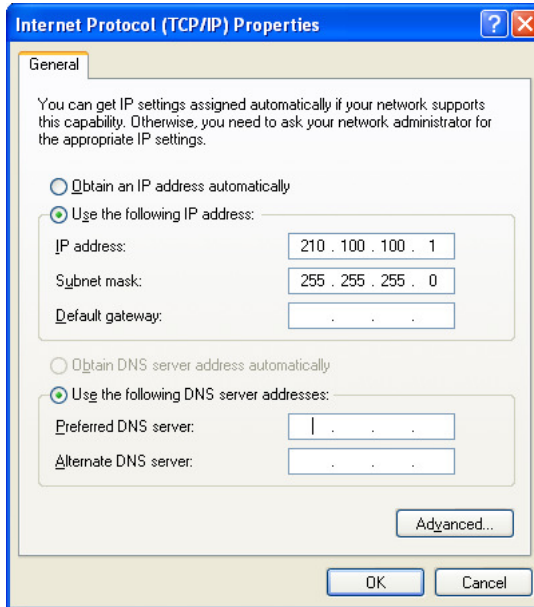
2. When the next screen appears, right-click the **Local Area Connection** icon, and click **Properties**.



- When the next screen appears, click to highlight **Internet Protocol (TCP/IP)**, and click **Properties**.



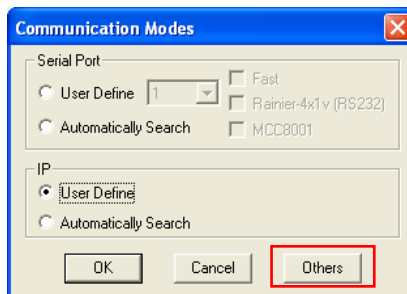
4. When the next screen appears, click the radio button to select **Use the following IP address:**, and then enter the **IP address: 210 . 100 . 100 . x** (where **x** is any value from **1 – 254**), and **Subnet mask: 255 . 255 . 255 . 0**.



5. Click **OK** to exit.

OPTION 2: Change the IP Address of the Rainier Series Master Module

1. Run the Galaxy software by double-clicking the “Galaxy-V31x.exe” file (located in the included utility disc or available on the Avitech website). When the following screen appears, click **Others**.



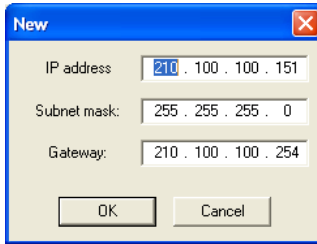
2. When the following screen appears, click to select the **Others** radio button, and on the **Module Style** drop-down menu, select **Rainier-4x1V (IP – RS232)**. Then, select **COM 1** (must be the same as the COM port setting of your computer).

The screenshot shows the 'Update BIOS' window with the following settings:

- CB [RS232]**
- Style:** DS80C400 (C2.1)
- COM:** 1
- ID:** 1
- Baudrate:** 57600
- Delay Time:** 1
- File Path:** C:\8004 series\MCC8004_FW_20090923\mcc-8004u.hex
- Others** (selected radio button)
- Module Style:** Rainier 4x1v (IP - RS232)
- COM:** 1
- IP:** 210 . 100 . 100 . 151
- Change IP Address** (highlighted button)
- Firmware:**
 - FPGA MB Digital Clock:** Path: [] Browse..
 - CPLD:** Path: [] Browse..
 - FPGA UB:** Path: [] Browse..
 - OSD (font, alarm...):** Path: [] Browse..
 - Boot Logo:** Path: [] Build Browse..
 - Screen Logo:** Path: [] Build Browse..
 - Clock Background:** Path: [] Build Browse..
- Module Information:**
 - Serial Num:** []
 - Model Name:** []
 - Alias:** []
 - Asset ID:** []
 - Description:** []
 - Hardware Rev:**
 - CB:** []
 - MB:** []
 - UB:** []
 - Read** button
 - Clear** button
 - Save** button

Buttons at the bottom: **Update** and **Cancel**.

3. Click **Change IP Address**. When the following screen appears, enter the new **IP address**, **Subnet mask**, and **Gateway**, to match the value of the controlling computer. Then, click **OK**.



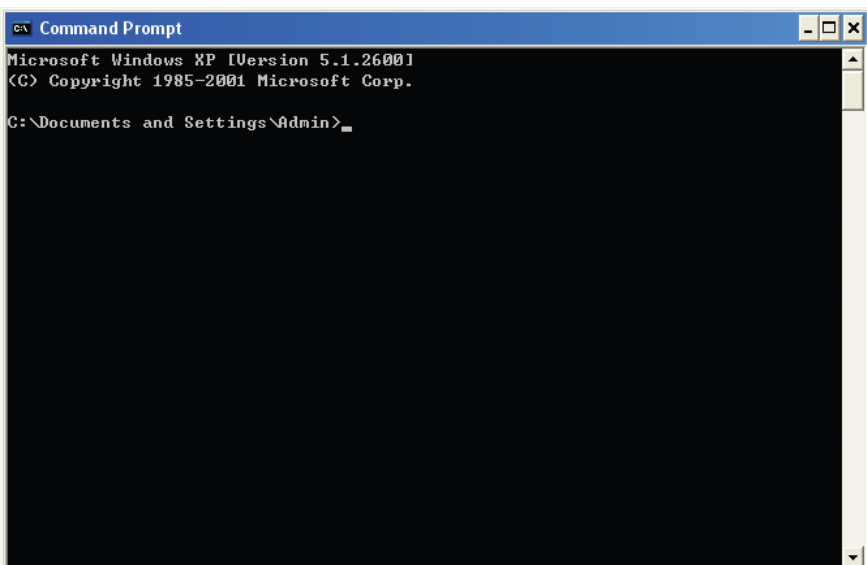
A screenshot of a Windows XP 'New' network configuration dialog box. The dialog has a blue title bar with the word 'New' and a close button. It contains three input fields: 'IP address' with the value '210 . 100 . 100 . 151', 'Subnet mask' with '255 . 255 . 255 . 0', and 'Gateway' with '210 . 100 . 100 . 254'. At the bottom are 'OK' and 'Cancel' buttons.

4. Click **Update** on the lower left portion of the **Update BIOS** window to exit.

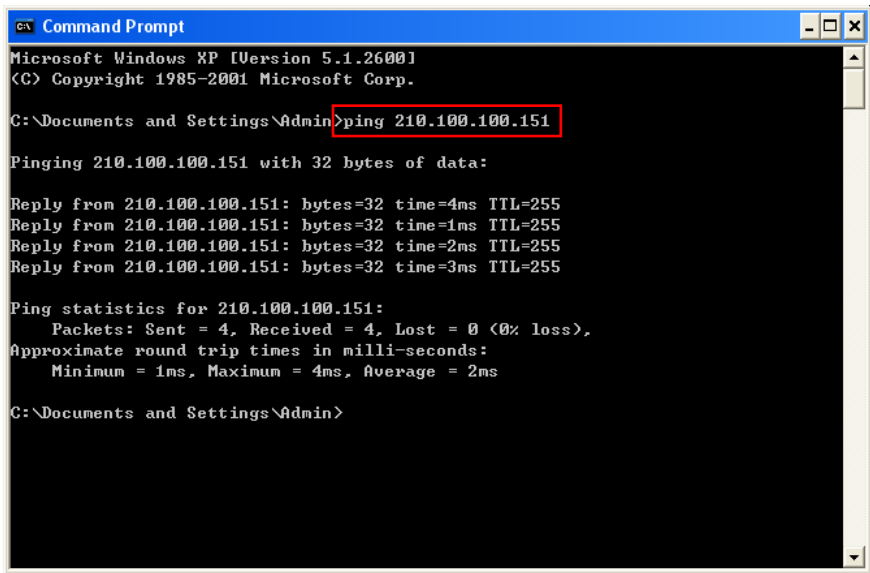
Pinging the Rainier-4U Series Module and Connecting via Galaxy

If you decide to use the network cable to connect, make sure you can ping the module at **210.100.100.151**, the factory-default IP address, by performing the following steps:

1. Click **Start→All Programs→Accessories→Command Prompt**. The following screen appears.



2. Type `ping 210.100.100.151` and the following screen will appear to signify a successful communication.



```
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\Admin>ping 210.100.100.151

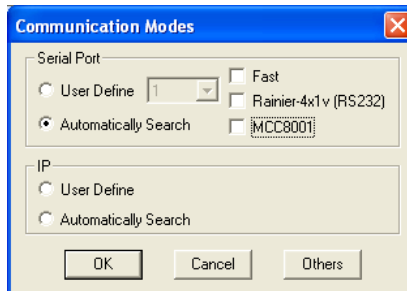
Pinging 210.100.100.151 with 32 bytes of data:

Reply from 210.100.100.151: bytes=32 time=4ms TTL=255
Reply from 210.100.100.151: bytes=32 time=1ms TTL=255
Reply from 210.100.100.151: bytes=32 time=2ms TTL=255
Reply from 210.100.100.151: bytes=32 time=3ms TTL=255

Ping statistics for 210.100.100.151:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 4ms, Average = 2ms

C:\Documents and Settings\Admin>
```

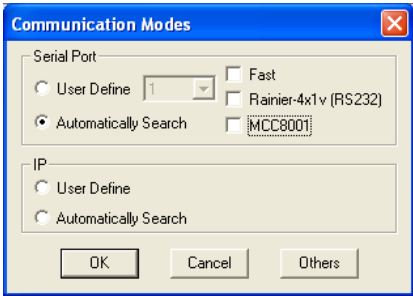
3. Type `exit` to exit the **Command Prompt** screen.
4. Run the Galaxy software by double-clicking the “Galaxy-V31x.exe” file. When the following screen appears, under **IP** select **Automatically Search**.



Click **OK** and your computer will start to search for your Rainier.

Setting up COM Port

Connect an RS-232 or an RS-232 to USB cable to your module and the computer running Galaxy. Run the Galaxy software by double-clicking the “Galaxy-V31x.exe” file. When the following screen appears, under **Serial Port**, select **Automatically Search**.

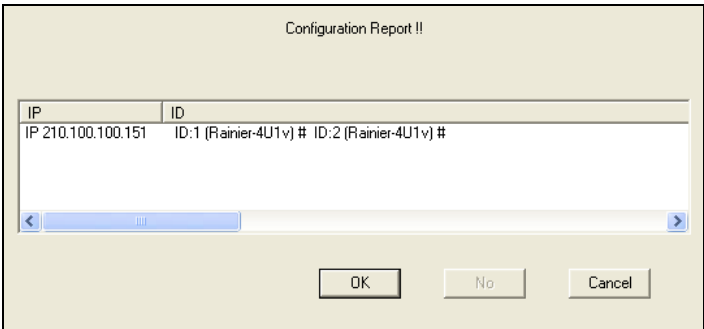


Click **OK** and your computer will start to search for your Rainier.

IMPORTANT: Make sure you have installed the appropriate driver for your USB to RS-232 cable. See p. 116 for more information.

Running Galaxy

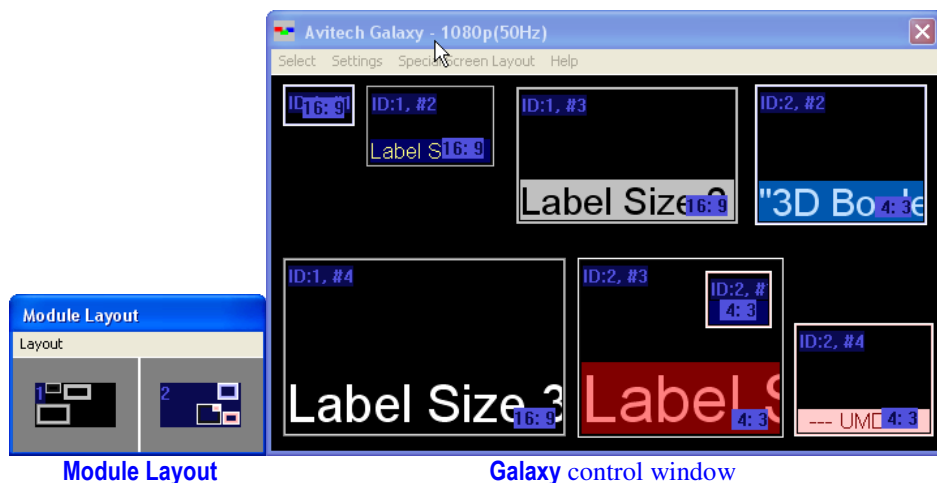
Upon finding your device, the following screen will appear to confirm connection to your Rainier module.

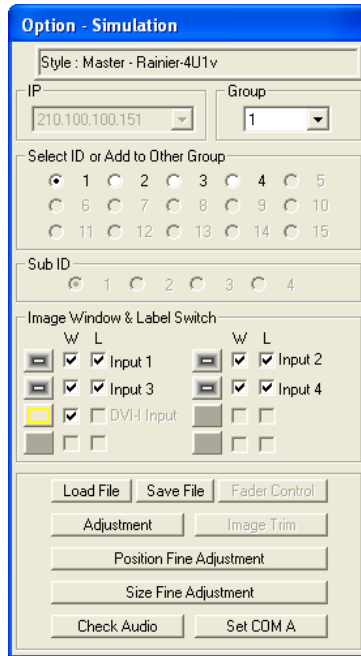


IMPORTANT:

If you have two or more modules cascaded together, they should all be detected. Make sure the cascaded modules have different **ID** settings (e.g., 1 – 2 – 3) on their rear panels.

Click **OK** and the following screens will appear: **Module Layout** window, **Galaxy** control window, and **Option** window.





Option window

- **Module Layout** window contains the bird's eye view of the module layout belonging to each ID in the system. In this example, the left window displays the layout belonging to ID:1 on the Galaxy control window; while the right window displays the layout belonging to ID:2. See p. 30 for further information on the **Module Layout** window.
- **Galaxy** control window is for creating and configuring the layout. See p. 31 for further information on the **Galaxy** control window.

NOTE: When entering the Galaxy software for the first time, the layout for ID: 1 may be covered by ID: 2.

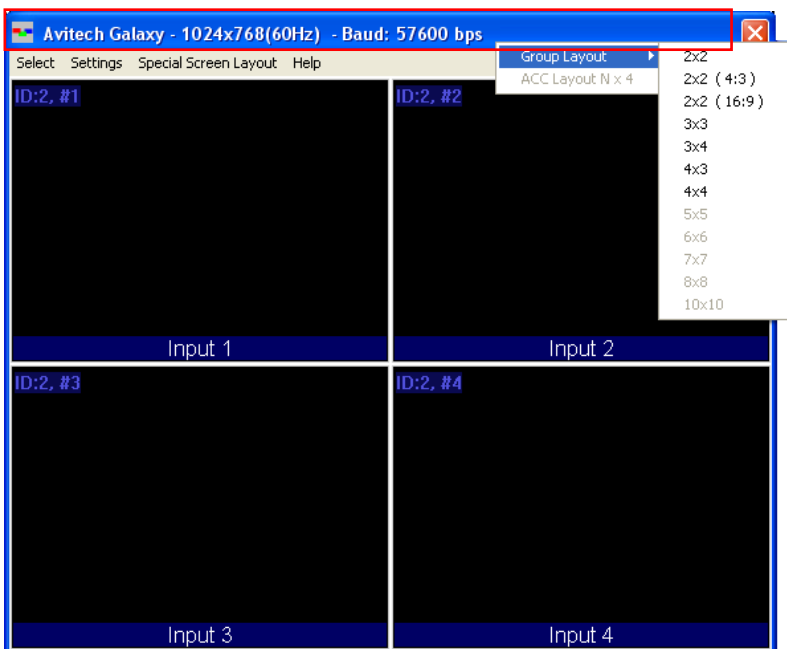
The following items can be found on the title bar portion:

- *Logo icon* **Avitech Galaxy**: proprietary logo and the name of the software.
- **1080p (50Hz)**: shows the current output resolution and frequency.

- **Option** window is for group and window / label setup; save / load file; monitor audio; adjust image; window size / position; and COM port setting. See p. 86 for further information on the **Option** window.

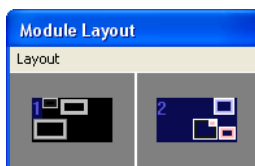
Right-click the mouse on the title bar to access the **Group Layout** menu. Select from **2×2** up to **10×10** as possible grid positions on the monitor display.

NOTE: The layout size available for your particular model will depend on the monitor display's resolution as well as the smallest window size limitation.



Module Layout Window

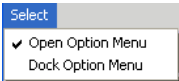
Layout Menu



Select from **2×2** up to **4×4** (left to right or top to bottom) as possible grid positions on the **Module Layout** window.

Galaxy Control Window

Select Menu



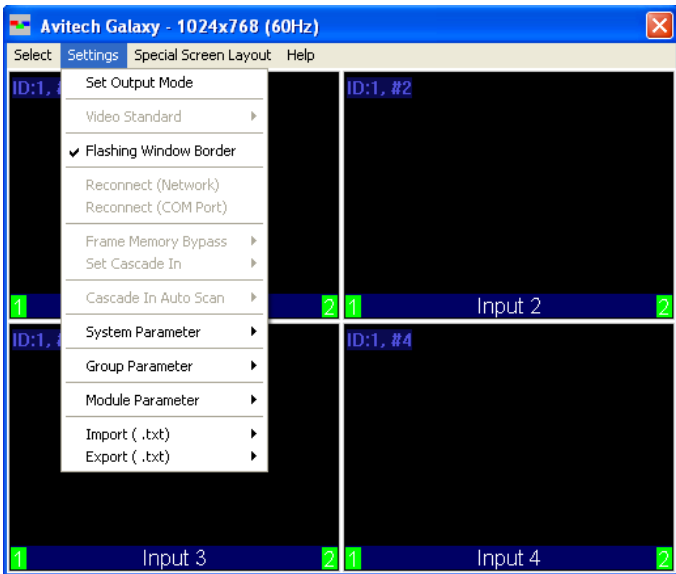
Open Option Menu

This toggles the **Option** window display on / off.

Dock Option Menu

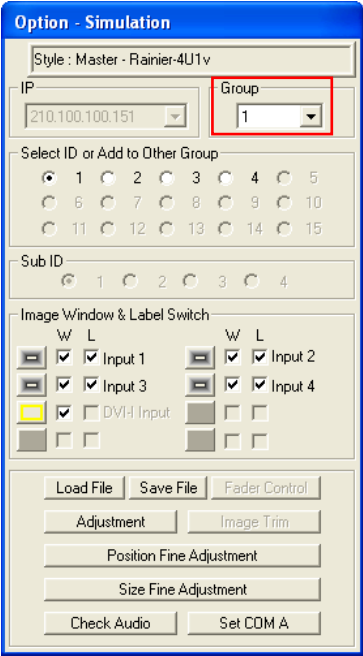
This returns the **Option** window display to its default position on the right side of the Galaxy control window. This option is not available (grayed-out) if the previous item, **Open Option Menu** is disabled.

Settings Menu

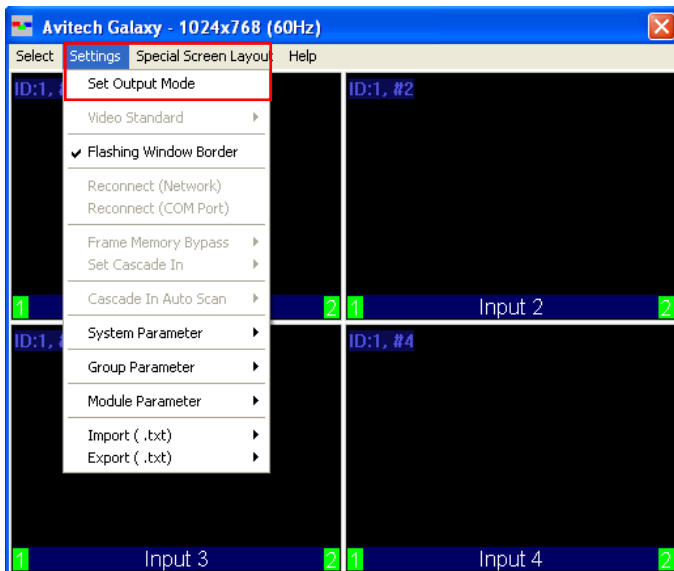


Change Output Resolution

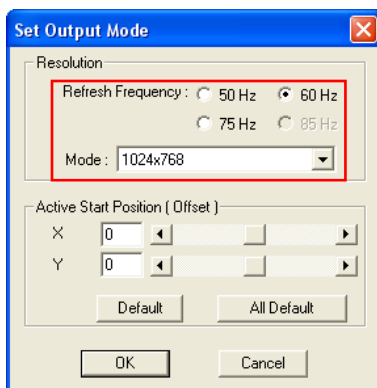
Changing the output resolution affects all the modules in the selected group. If you have more than one group, make sure you select the correct **Group** on the drop-down menu before performing this operation. The Rainier's default output resolution is 1024×768 / 60 Hz.



1. Click **Settings**, and then click **Set Output Mode**.

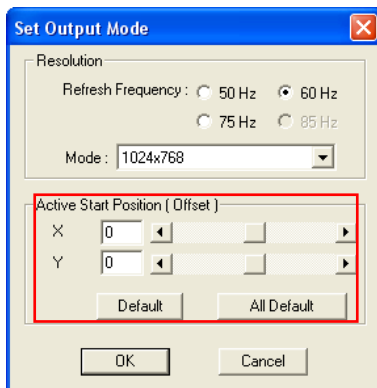


2. When the following screen appears, set the output resolution to match that of the monitor display. Select the **Refresh Frequency**, select the **Mode** from the drop-down menu, and then click **OK**. You will notice that the selected resolution is displayed on the title bar of your Galaxy software.



Active Start Position (Offset)

Sometimes, the monitor display or recording device does not use the proper display timing when receiving a signal from the Rainier module's output. This may cause the image displayed on the monitor to appear out of alignment. Use the **Active Start Position (Offset)** function to allow the image to display properly within the monitor.



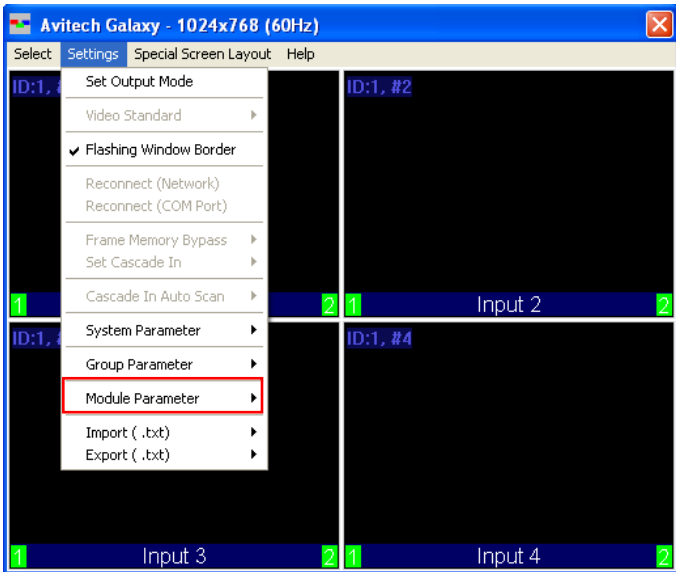
NOTE:

- In order to be able to adjust the **Active Start Position (Offset) X** and **Y** position, the **Resolution's Refresh Frequency** and **Mode** setting must be the same as the monitor display or recording device. Otherwise, it will be grayed-out (not adjustable).
- Upon setting the **Resolution's Refresh Frequency** and **Mode** values, the option may then be closed. Press **OK** to allow the new settings to take effect, and then enter **Settings→Set Output Mode** again to use the slider to adjust the **Active Start Position (Offset) X** and **Y** position.
- Upon clicking the **All Default** button, all the modules on this particular group will revert the **Active Start Position (Offset) X** and **Y** position setting to the default value.

For Quad-Split Models (Rainier-4a / 4d / 4U)

By default, the Rainier-4a / 4d (up to 1440×900 only) / 4U (up to 1920×1200) will automatically detect the optimum display resolution. To disable this feature, perform the following steps:

1. Click **Settings**, then **Module Parameter**.



2. Click **Auto Parameter**.



3. Click to unselect (remove the checkmark) the **Detect Display Resolution** option.

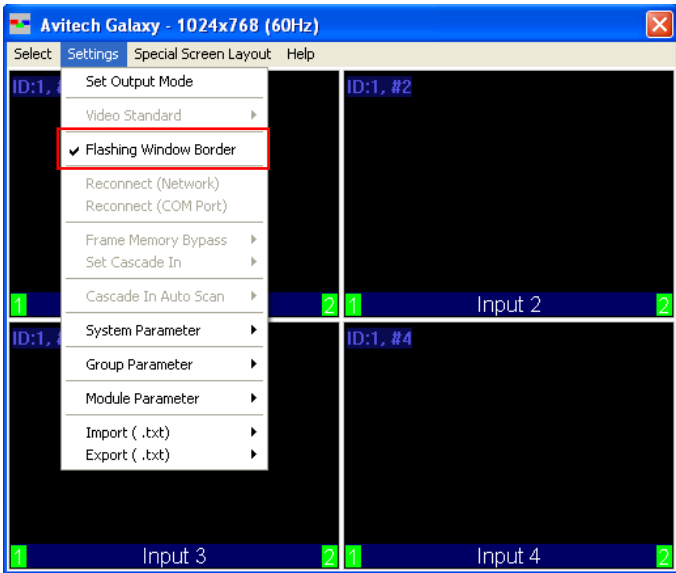


NOTE: When the **Detect Display Resolution** option is selected (with checkmark), all the presets will be displayed in the optimum resolution.

When the **Detect Display Resolution** option is unselected (without checkmark) and you have set the desired resolution using the **Set Output Mode** option, all the presets will be displayed in the desired resolution that you have set.

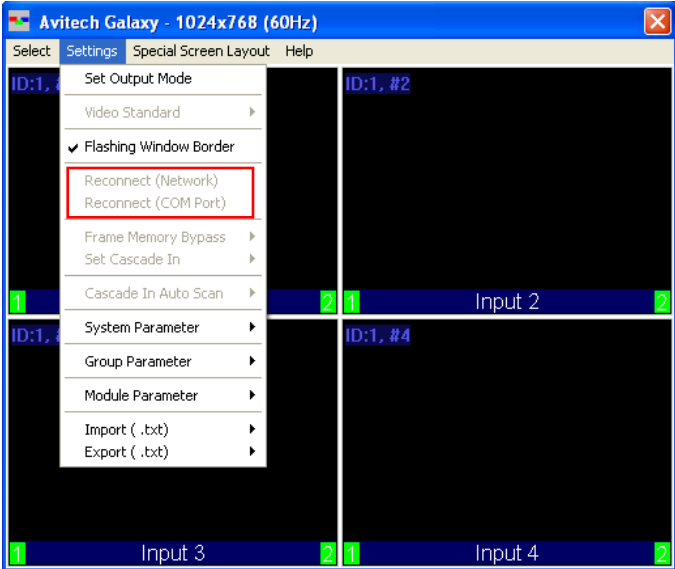
Flashing Window Border

When the **Flashing Window Border** option is enabled (with checkmark), the border of the window where the mouse cursor just resided will blink twice to notify you of its location.



Reconnect (Network) / (COM Port)

If the IP connection between the computer and the Rainier module becomes unplugged during operation, reconnect it, then click **Reconnect (Network)** to continue the configuration process. Or, when using the serial cable, click **Reconnect (COM Port)** instead.



System Parameter

The following setup affects all the modules of all the groups. Upon clicking **System Parameter**, the menu appears as shown below.

Return Group Index to Default	
One Module Per Group	
Save System Files To Flash	
All Meters	▶
All Labels	▶
All Clocks	▶
All TSL	▶
Module Cascade Series	
Advanced	
Clear Alarm Message (Locked state)	
Clear Tally Status	
Focus Window (MKC)	
Setup Module to Speaker ID	
Setup Group	

Group Parameter

The following setup affects all the modules in the selected group only. Upon clicking **Group Parameter**, the menu appears as shown below.

Group Reset	
Meter	
Label	
Border	
Tally	
Alarm	
Clock	
UnderScan	
COM A	
Safe Area	
TSL	
Aspect Auto Detect	▶
Output Timing	▶
VGA to Background	▶
Analog Clock / Screen Logo	▶
Close Caption	▶
Frame Lock (Fullscreen mode)	▶
Window Size	▶
Frame Memory Status	▶
Set Default Layout	

Module Parameter

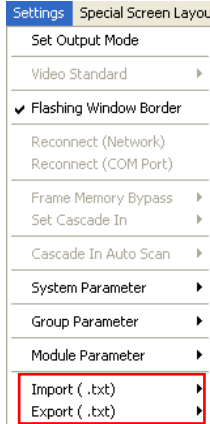
The following setup affects the selected module only. Upon clicking **Module Parameter**, the menu appears as shown below.

Module Reset
IP Address
Y Delay
Auto Parameter ▶
Output Timing ▶
Clock Window
Cascade In VGA Only
Tally
VGA to Background
Analog Clock / Screen Logo ▶
GPI Definitions
Preset Time
ACC Setup
ACC Alarm
VCC OSD
TSL
Rainier Cascade In mode
VGA Auto Setting ▶
VGA Auto Detect ▶
VGA Auto Detect (Gain) ▶
Frame Lock (Fullscreen mode)
Line Lock
VCC8000 BMP Label Resources
NTSC Black Level ▶
Frame Memory Status ▶

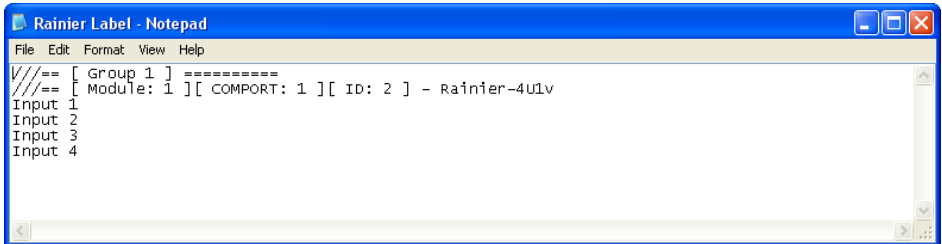
Exporting / Importing Label

This feature allows you to export the label to either Microsoft[®] Excel or as a text file that can be edited externally. You can also export the BIOS version to a text file. To export / import label, perform the following steps:

1. Export the file to **XLS** or **TXT** format to view the file structure.

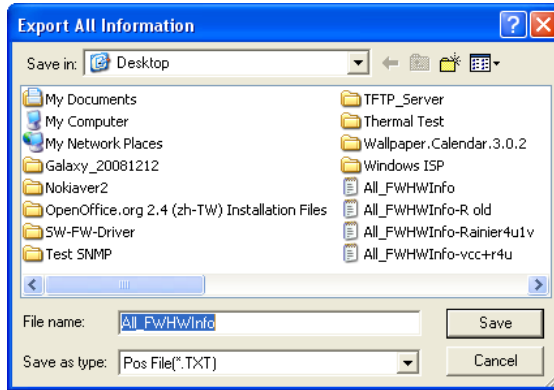


2. Edit the text in the file starting with Group 1, Module 1.

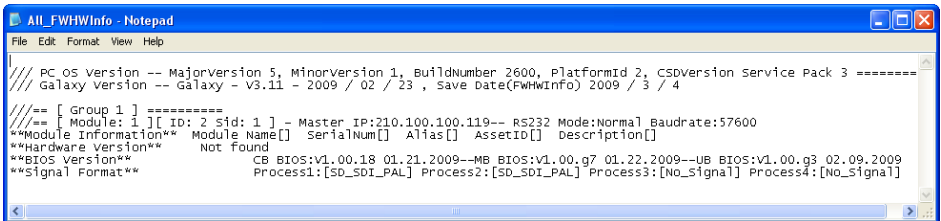


3. When you are done entering labels, save the file, and then import it using the Galaxy software. The onscreen labels will automatically be updated.

4. To export all firmware / hardware information to a text file, click **Export (.txt)** and assign a filename when the next screen appears.



5. Click **Save**. The next screen shows the text file opened using **Notepad**.

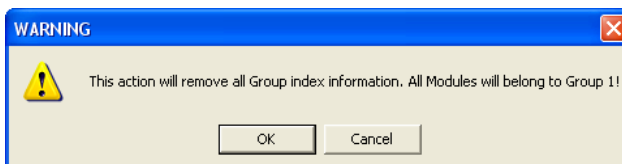


System Parameter

The following are the items appearing on **System Parameter**.

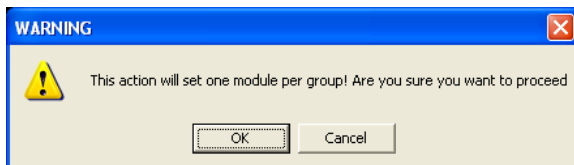
Return Group Index to Default

This returns all groups to their default setting and then combines all modules into one group. Click **OK** when the next screen appears to complete the configuration change.

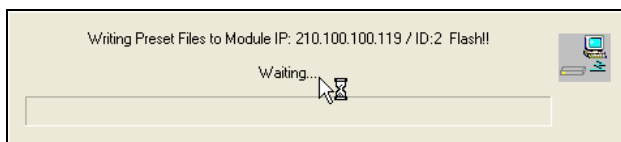


One Module Per Group

By default, the Galaxy software combines all available modules into one large group. To quickly divide modules into different groups, this option separates each individual module into its own group. For example, if you are cascading four modules, it will divide them into four groups. When the next screen appears, click **OK** to finalize the changes.



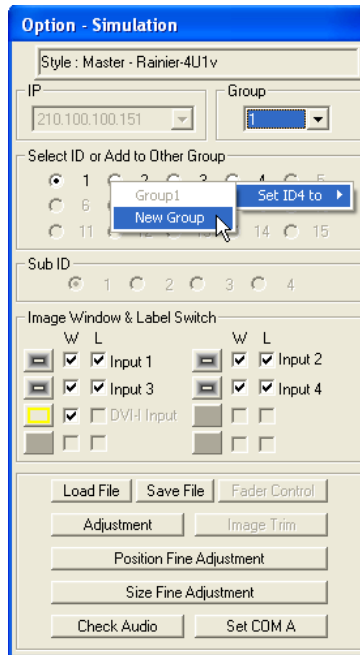
The configuration progress will be shown on the screen.



NOTE: This feature is oftentimes used on Quad-split models (Rainier-4a / 4d / 4U). Upon selecting this feature, the Group sequence starts from the lowest-level ID number. When any window is set to full screen, that window will revert back to the layout prior to full screen mode. After dividing into Group(s), the entire module's preset file will be cleared and the latest **system.agi** (new configuration file), **module.sys**, and **software.ini** will be written into flash memory.

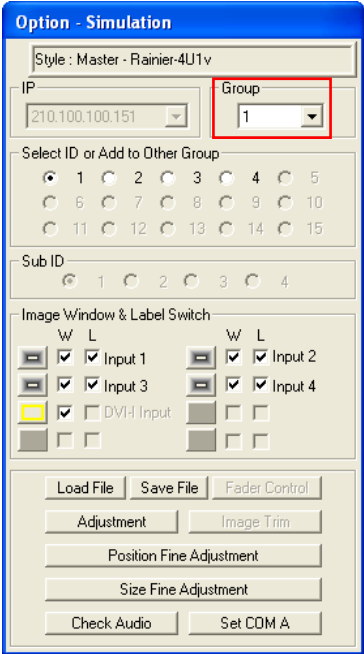
OPTION: An alternative method to create a new group is:

1. Right-click the mouse on the module you wish to add to the new group. Then click **Set ID# to→New Group**.



2. Repeat for all additional modules (you can either add additional modules to the new group or create additional groups).

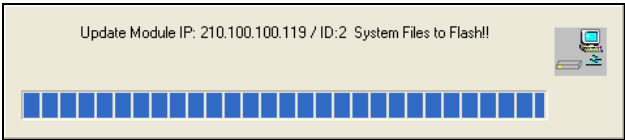
3. To switch between the different groups, use the **Group** drop-down menu.



4. Exit the Galaxy software and select **Yes** when prompted to save to flash memory.

Save System Files to Flash

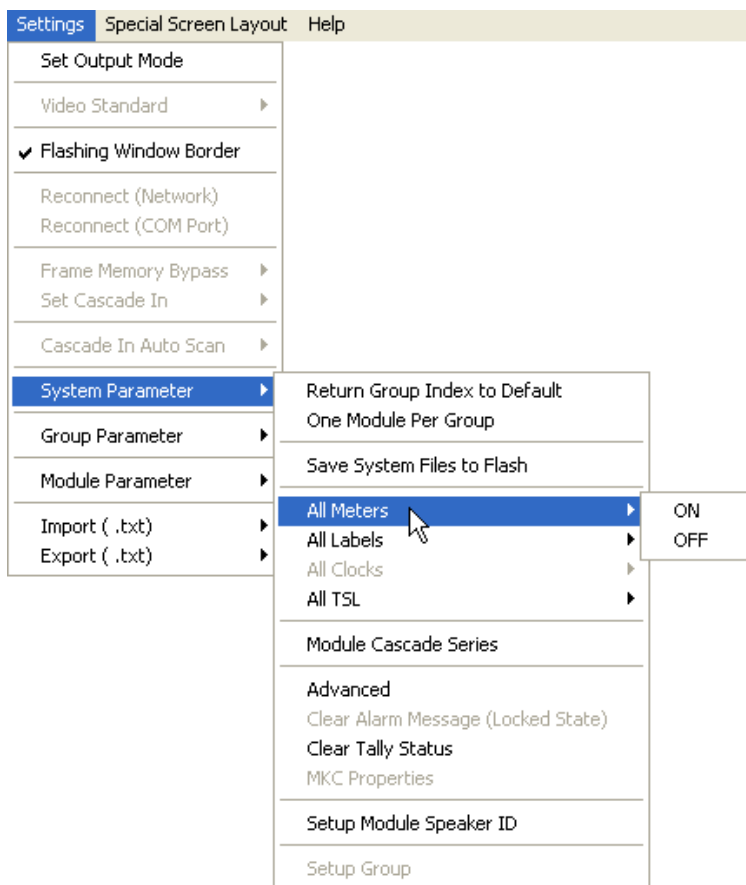
This allows you to save all configuration settings to flash memory. If the system configuration has been changed, save the changes first before continuing the other configuration settings. The progress of saving to flash memory will be displayed.



IMPORTANT: You should always save system files to flash memory prior to operating your module to ensure consistent performance.

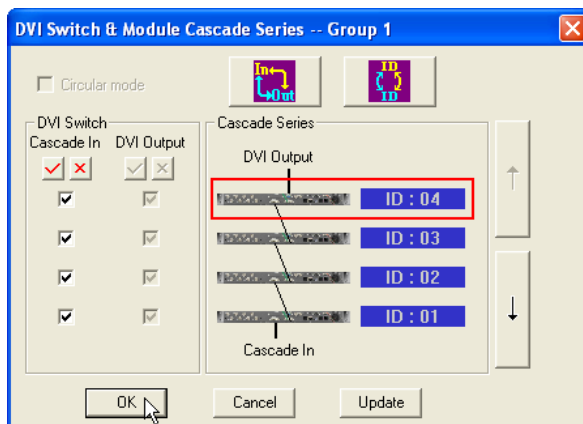
Turning On / Off All Meters / Labels / TSL

To turn on / off all audio meters / labels / TSL for all the modules, regardless of the group it belongs to, click **ON** / **OFF**.



Module Cascade Series

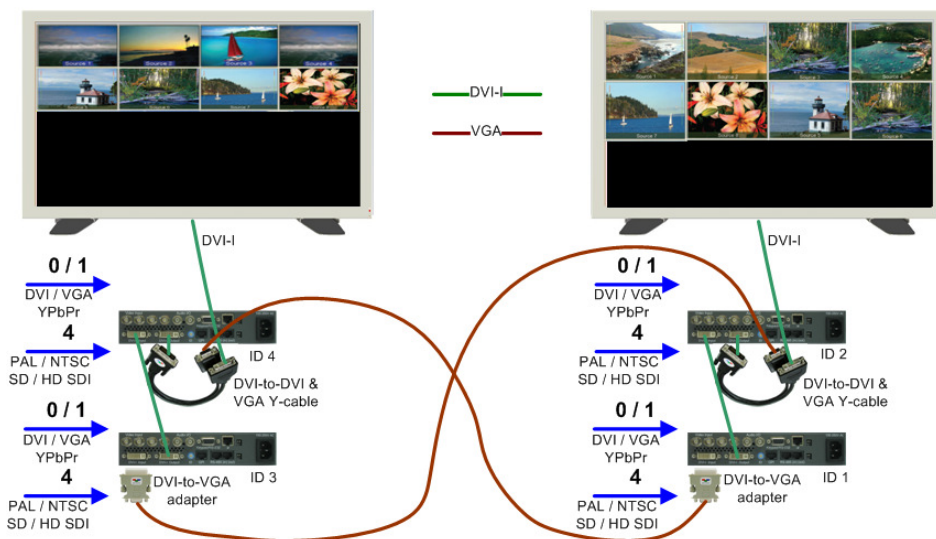
Use the **DVI Switch** function to enable or disable **Cascade In** for each ID number. Use the **Cascade Series** function to change the ID number designation only; this does not affect the actual physical connection of the Rainier series.



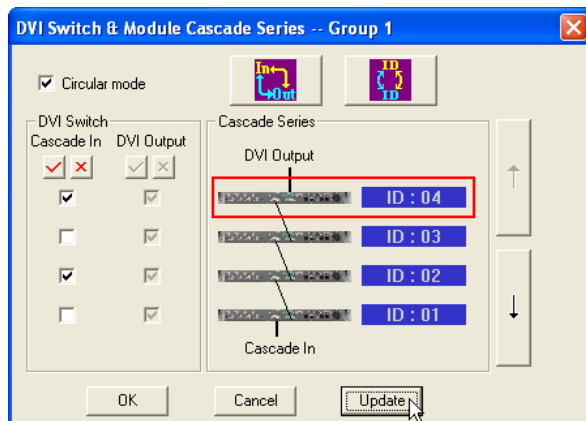
IMPORTANT: Make sure the ID number designation on the **Cascade Series** section matches the actual physical connection of the cascaded Rainier series.

Example

The DVI output of the last module of each group is feeding the monitor display. The VGA output of the last module of each group is also connected to the background input of the first module of the other group. During normal operation, the input of the first module of each group is disabled (switched to default black background).



The following setting is shown to affect the above sample scenario. Take note that the **Circular Mode** item must be enabled.



NOTE: Upon selecting (enabling) the **Circular Mode** option, the **DVI-I Input** window will be disabled on all the modules. Likewise, **Rainier Cascade In Mode** under **Settings→Module Parameter** will be disabled on all the modules.

Option - Simulation- Circular Mode

Style : Master - Rainier-4U1v

IP: 210.100.100.151 Group: 1

Select ID or Add to Other Group

1 2 3 4 5
6 7 8 9 10
11 12 13 14 15

Sub ID: 1 2 3 4

Image Window & Label Switch

W		L		
☒	☒	Input 1	☒	☒
☒	☒	Input 3	☒	☒
☐	☐	DVI-I Input	☐	☐
☐	☐		☐	☐

Load File Save File Fader Control

Adjustment Image Trim

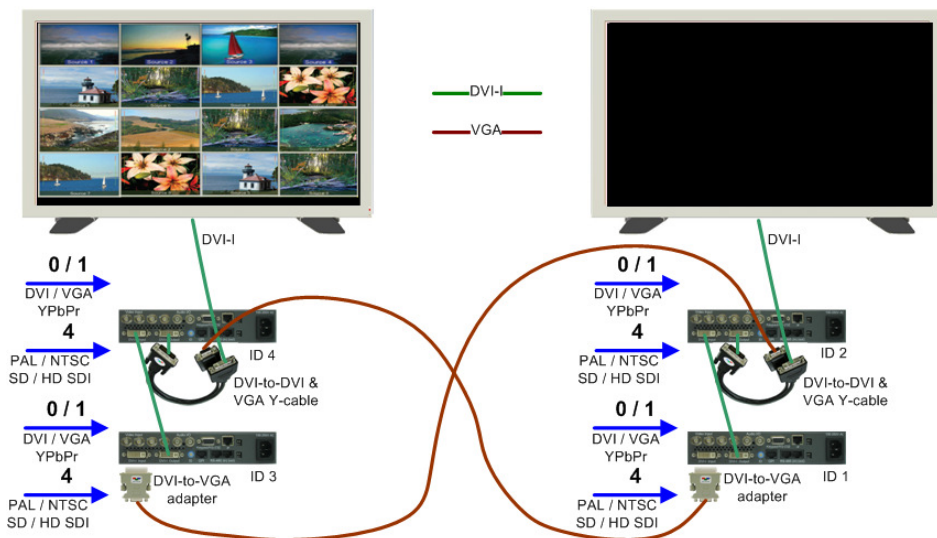
Position Fine Adjustment

Size Fine Adjustment

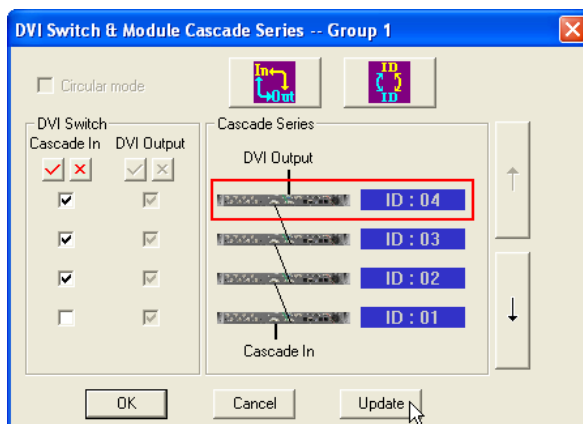
Check Audio Set COM A

Settings	Special Screen Layout	Help
Set Output Mode		
Video Standard	Module Reset	
Flashing Window Border	IP Address	
Reconnect (Network)	Y Delay	
Reconnect (COM Port)	Auto Parameter	
Frame Memory Bypass	Output Timing	
Set Cascade In	Clock Window	
Cascade In Auto Scan	Cascade In VGA Only	
System Parameter	Tally	
Group Parameter	VGA to Background	
Module Parameter	Analog Clock / Screen Logo	
Import (.txt)	GPI Definitions	
Export (.txt)	Preset Time	
	ACC Setup	
	ACC Alarm	
	VCC OSD	
	TSL	
	Rainier Cascade In mode	
	VGA Auto Setting	
	VGA Auto Detect	
	VGA Auto Detect (Gain)	
	Frame Lock (Fullscreen mode)	
	Line Lock	
	VCC8000 BMP Label Resources	
	Composite Black Level	
	Frame Memory Status	

In case one monitor display fails, a preset combining all the inputs of both groups can be recalled through the looping cable. In case the other monitor display fails, another preset addressing this situation can be recalled. The same concept can be extended to more than two groups.

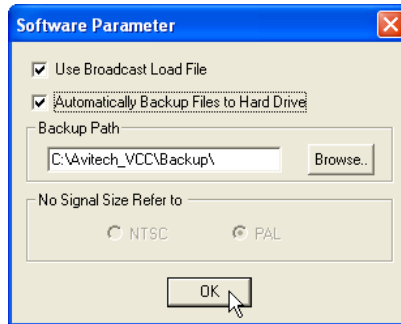


The following setting is shown to affect the above sample scenario.



Advanced

Upon clicking **Advanced**, the following screen appears:



- **Use Broadcast Load File**

For loading presets / switching resolution / group reset. When this option is enabled (with checkmark), the Galaxy software will broadcast the command to every module, allowing for simultaneous execution of the command.

| NOTE: This feature should always be enabled.

- **Automatically Backup Files to Hard Drive**

When enabled (with checkmark), the Galaxy software will save all backup files to the computer hard drive's "c:\Avitech_VCC\Backup\" folder. You may change this by clicking **Browse** to select a different location to save the backup information.

- **No Signal Size Refer to**

When the window is unable to detect a signal, this will serve as the basis for the Galaxy software to adjust the window size. **NTSC**: maximum window size is 816×465. **PAL**: maximum window size is 816×560.

Clear Tally Status

When running tally via RS-232, use this function in the Galaxy software to close it. Alternatively, use the ASCII Z command to close tally via RS-232.

Setup Module to Speaker ID

Set up the speaker to monitor the audio source.



Group Parameter

The following are the items appearing on **Group Parameter**.

Group Reset

This allows you to refresh all modules belonging to the same group.

Meter

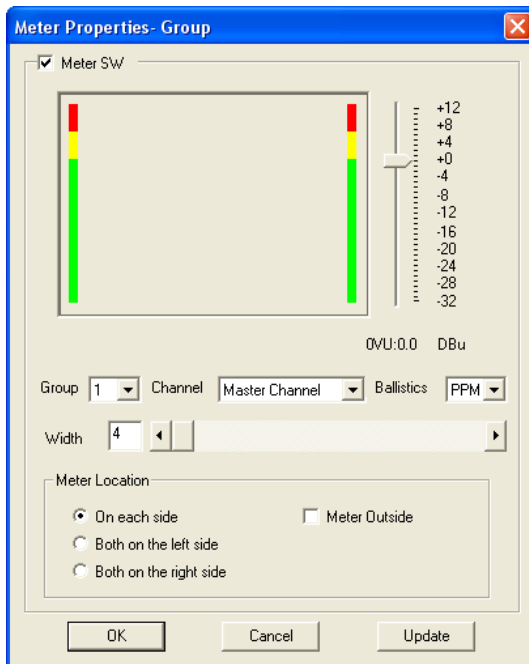
There are two hierarchies for setting the **Meter** properties. One can affect the entire group, while the other affects a single window.

For an Entire Group

To change the audio meter properties for an entire group, perform the following steps:

NOTE: Make sure to turn on all audio meters (see p. 45) before setting the audio meter properties.

1. Upon clicking **Meter**, the following screen will appear:

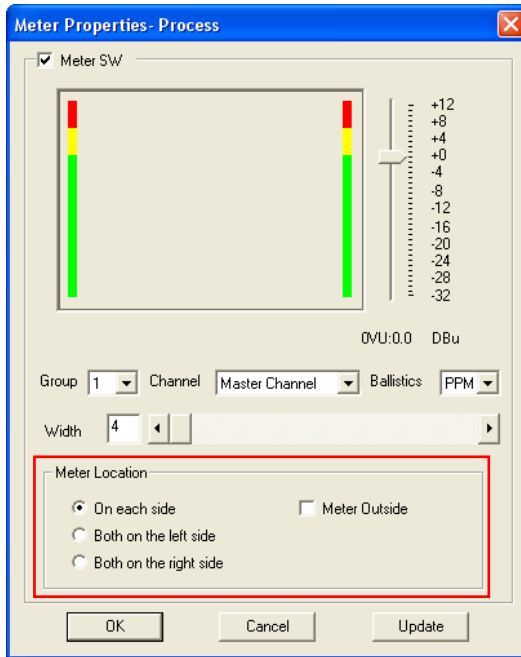


The Rainier is capable of displaying embedded audio as VU meters inside the video window. Embedded audio is divided into four groups, with a master and secondary channel for each group. This allows you to display the left and right VU meter of either the master or secondary channel on the left and right side of the window just as the menu depicts.

2. Change the group or channel by selecting it from the **Group (1 – 4)** and **Channel (Master / Secondary)** drop-down menu.

| NOTE: When there is no audio detected, you will NOT see any VU meters.

3. By default, the meter will display on each side of the window. You may change the preferred meter location.

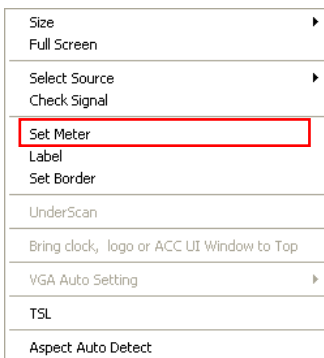


To change the location:

- Click on the radio button to select either **On each side**, **Both on the left side**, or **Both on the right side**.
- Click the **Meter Outside** checkbox if you desire for the meter to appear outside the image (by default the meter will appear on top of the image).

For an Individual Window

To change the audio meter properties for a single window, use the mouse to right-click on a window, and then click **Set Meter**.



Label

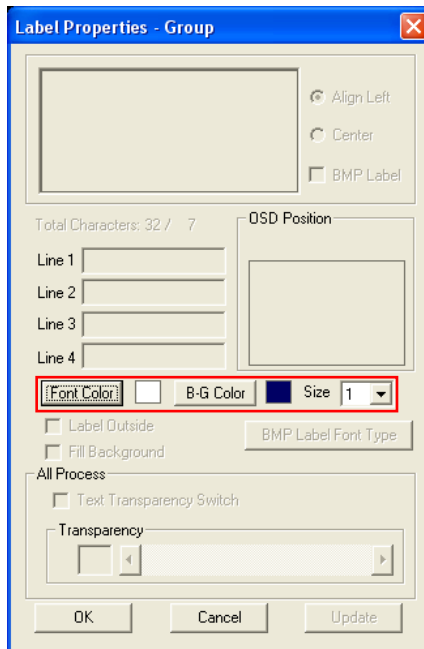
There are two hierarchies for setting the **Label** properties. One can affect the entire group, while the other affects a single window.

For an Entire Group

To set the label properties, perform the following steps:

| NOTE: Make sure to turn on all labels (see p. 45) before setting the label properties.

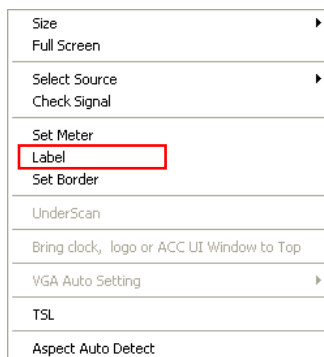
Select **Settings→Group Parameter→Label** to adjust the **Font Color**, **B-G** (background) **Color**, and font **Size** for all labels in the group.



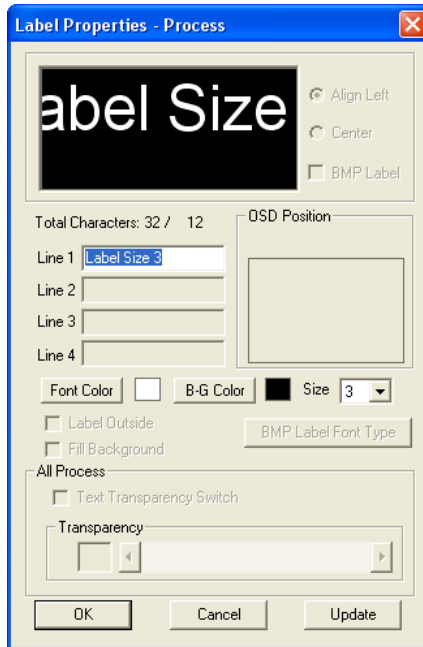
For an Individual Window

1. Right-click the mouse on a window and select **Label** to enter text.

| NOTE: DVI input does not display a label.



2. Keep in mind that each window supports one line of text (up to 32 characters).

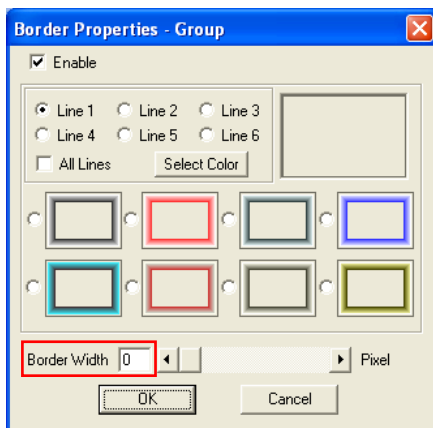


Setting Border Properties

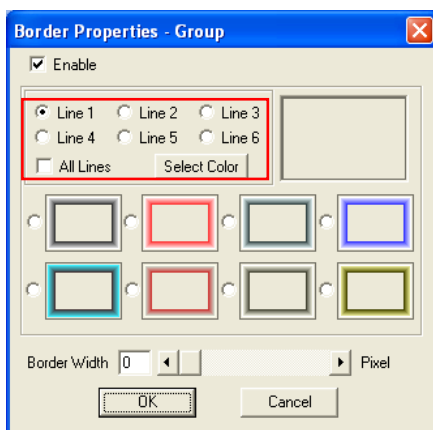
Borders are turned on by default. To turn off the border, perform the following steps:

For an Entire Group

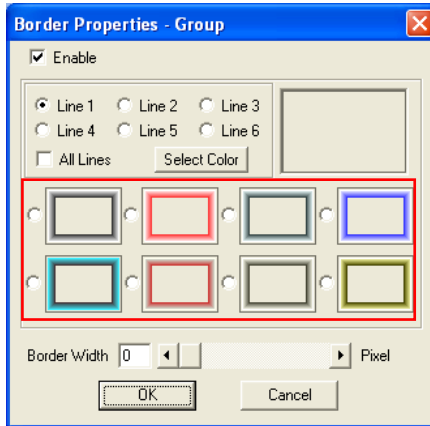
1. Select **Settings→Group Parameter→Border**, and then change the **Border Width** to **0**.



2. You can also change the border color.
 - Each pixel / line can have a different color



- 3D border



For an Individual Window

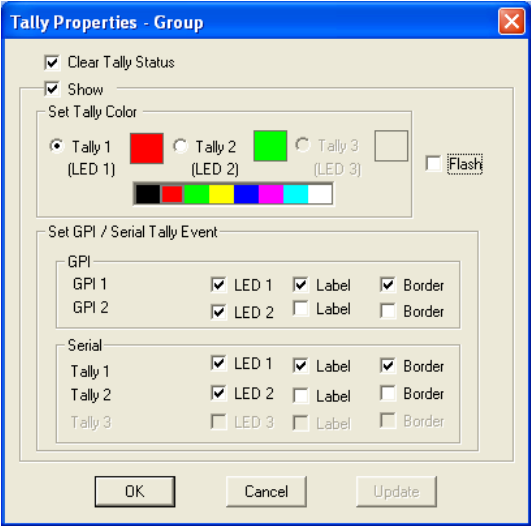
To change the border properties for an individual window, right-click the mouse on the window and select **Set Border**, then select the desired color and size.

| NOTE: DVI input does not display a border.

Activating Tally

The GPI terminal block allows for a total of eight inputs to activate tally, two per window. You can also use the serial port with ASCII, TSI, or TSL to activate tally. To change the appearance of tally, perform the following steps:

1. Select **Settings→Group Parameter→Tally**. The following window appears:

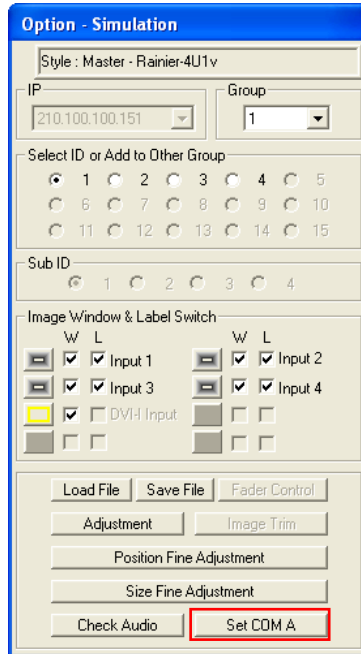


2. The settings that can be adjusted include **Tally Color**, **LED**, **Label**, **Border**, and **Flash**.

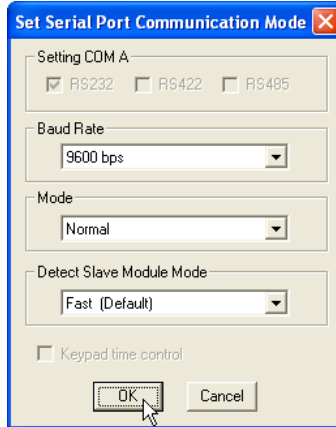
Setting COM Port

This allows you to configure the serial port of the module with the computer for configuration and control. There are two methods for setting COM port. To set the COM port, perform the following steps (by default, the COM port is set to normal and baud rate set to 57600 bps):

1. Click **Settings**→**Group Parameter**→**COM A**. Or in the **Option** window, click **Set COM A**.



2. The following screen appears.



3. Select the **Setting COM A** option (if applicable).
4. Set the **Baud Rate**.
5. Select the **Mode**.
 - **Normal** – for use with ASCII or TSI.
 - **TSL** – for use with the TSL protocol. The initialization process is different, so the same TSL protocol for other Avitech products may not function correctly with the Rainier without additional changes.
 - **Load File** – for use with the SCP (Simplified Control Panel) keypad.
6. Select the **Detect Slave Module Mode**.
 - **Fast** – default.
 - **Slow** – when cascading the Rainier-4x1V series (RS-232), because Rainier-4x1V series (RS-232) has a slower response time, then you need to set it at **Slow**.
7. After setting COM A, you will be prompted to close the Galaxy software and power cycle (shutdown and restart) the module.

TSL

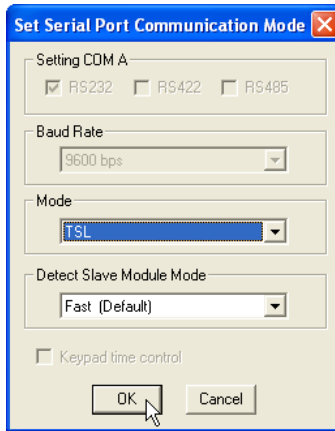
The Rainier includes one RS-485 / RS-232 port that is used for connecting to a computer for configuration control, and connecting to TSL controller. One TSL port of the TSL controller is needed for connecting to the first module of each group. To set up the configuration, perform the following steps:

1. In the **Option** menu click **Set COM A**.

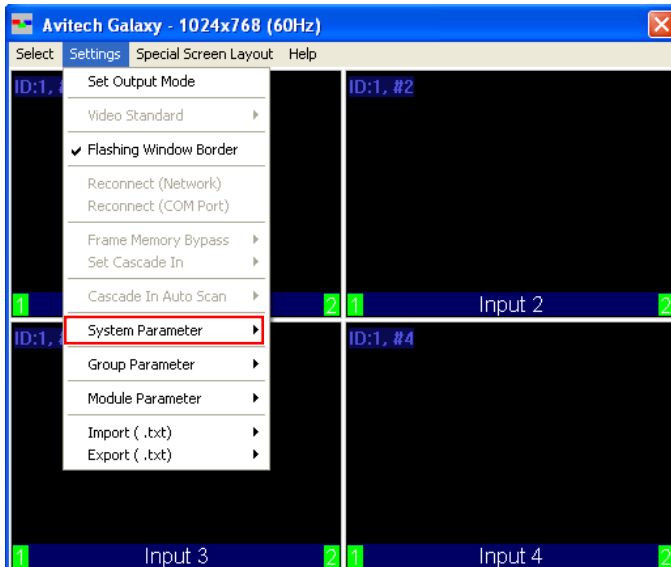
The screenshot shows the 'Option - Simulation' window with the following details:

- Title Bar:** Option - Simulation
- Style:** Master - Rainier-4U1v
- IP:** 210.100.100.151
- Group:** 1
- Select ID or Add to Other Group:** A grid of 15 radio buttons labeled 1 through 15. Radio button 1 is selected.
- Sub ID:** A row of 4 radio buttons labeled 1 through 4. Radio button 1 is selected.
- Image Window & Label Switch:** Two columns of controls. Each column has a 'W' and 'L' label above a set of checkboxes. The left column has checkboxes for 'Input 1', 'Input 3', 'DVI-I Input', and an unlabeled one. The right column has checkboxes for 'Input 2', 'Input 4', and two unlabeled ones. The 'DVI-I Input' checkbox is highlighted with a yellow box.
- Buttons:** Load File, Save File, Fader Control, Adjustment, Image Trim, Position Fine Adjustment, Size Fine Adjustment, Check Audio, and Set COM A (highlighted with a red rectangle).

2. Set the **Mode** to **TSL**. The **Baud Rate** will automatically adjust to **38400 bps** (according to TSL specifications).



3. Save and exit the Galaxy software – this can also be done once all the parameters have been configured.
4. By default, all windows are enabled for the TSL protocol. This can be changed for an individual window, on a group basis, or at the system level by clicking **Settings→System Parameter**.



5. Click **All TSL**, and then select **ON / OFF**.

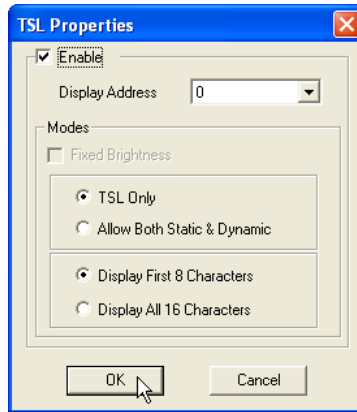
Return Group Index to Default One Module Per Group	
Save System Files To Flash	
All Meters	▶
All Labels	▶
All Clocks	▶
All TSL	▶
Module Cascade Series	
Advanced	
Clear Alarm Message (Locked state)	
Clear Tally Status	
Focus Window (MKC)	
Setup Module to Speaker ID	
Setup Group	

For an Individual Window

1. Right-click on a window, then click **TSL**.

Size	▶
Full Screen	
Select Source	▶
Check Signal	
Set Meter	
Label	
Set Border	
UnderScan	
Bring clock, logo or ACC UI Window to Top	
VGA Auto Setting	▶
TSL	
Aspect Auto Detect	

2. Ensure that **Enable** is selected (with checkmark). If it is unchecked, only static labels will be displayed.



3. Specify the **Display Address** (ranges from **0** to **126**). The address should match the TSL controller configured address corresponding to the router output feeding the corresponding Avitech input.

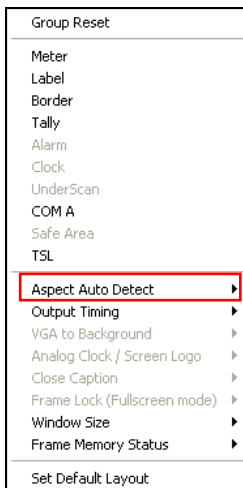
NOTE: Use the mouse to right-click each individual window to set the **TSL Display Address**.

4. If you want to display dynamic labels, click the radio button to select **TSL Only**. If you want to display both the static and dynamic labels, click the radio button to select **Allow Both Static & Dynamic**.
5. To display 8 or 16 dynamic characters (if the TSL implementation allows it), click the radio button to select the corresponding options.
6. This concludes the TSL setup on the group level. Perform the same steps for each individual window.

NOTE: When dynamic labels are displayed, bitmap fonts cannot be used for displaying static and / or dynamic labels.

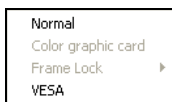
Aspect Auto Detect

This allows you to turn on / off automatic detection of the input signal's aspect ratio. For HD-SDI input signal, the aspect ratio will be 16:9; for SD-SDI / composite, the aspect ratio default setting is 4:3.



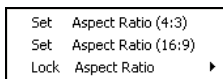
Output Timing

There are two output timings, **Normal** and **VESA**. **Normal** output timing is designed for brands of monitor display that do not support the **VESA** standard. The default setting for output timing is **Normal**.

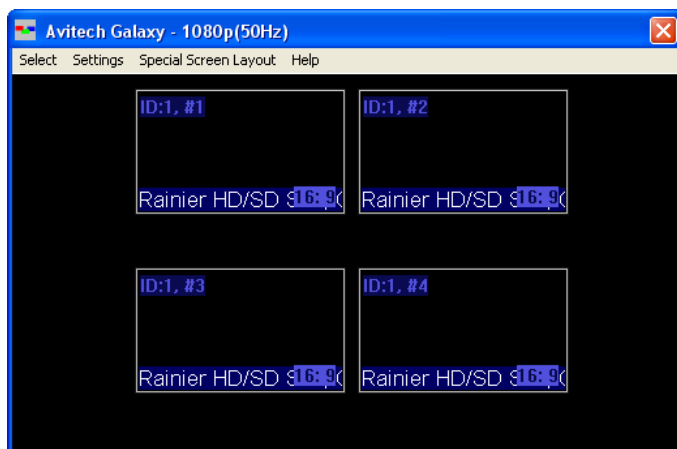


Window Size

There are three sizes that can display all the windows in a group: **4:3**, **16:9**, or **Lock Aspect Ratio**.

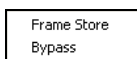


When changing the width of the window, the height will automatically adjust to match the aspect ratio.



Frame Memory Status

This allows the image from the DVI cascade input not to pass through the image scaling processor DDR for processing. Rather, it will bypass to the display output port. This will lessen the occurrence of frame delay when multiple Rainier modules are cascaded. No special setting is required as the firmware can automatically detect and perform the frame memory bypass function.



IMPORTANT: Make sure when making the hardware connections that the module **ID** must be set at **0** and the **DVI-I Input** must be used to connect other than the Rainier's **DVI Output** signal. This means that the sequence of connection must be as follows: **PC DVI Output**→**ID 0 DVI-I Input**, **ID 0 DVI-I Output**→**ID 1 DVI-I Input**, **ID 1 DVI-I Output**→**ID 2 DVI-I Input**, **ID 2 DVI-I Output**→**ID 3 DVI-I Input**, **ID 3 DVI-I Output**→**monitor display**.

Set Default Layout

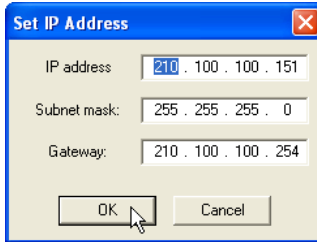
When you have multiple units cascaded together, you can quickly show all the windows by selecting **Settings**→**Group Parameter**→**Set Default Layout**.

Module Parameter

The following are the items appearing on **Module Parameter**.

IP Address

This allows you to change to an IP address different from the default one.



A screenshot of a Windows-style dialog box titled "Set IP Address". The dialog has a blue title bar with a red close button. It contains three text input fields: "IP address" with the value "210 . 100 . 100 . 151", "Subnet mask:" with the value "255 . 255 . 255 . 0", and "Gateway:" with the value "210 . 100 . 100 . 254". At the bottom, there are two buttons: "OK" and "Cancel". A mouse cursor is pointing at the "OK" button.

GPI Definitions

Users can set the preset time (1 – 8), for count up or down, which can be recalled using GPIO. To assign the definition of each GPI, perform the following steps:

1. Upon clicking **GPI Definitions**, the following screen appears:

The screenshot shows the 'GPI Definitions' window. It has a blue title bar with the text 'GPI Definitions' and a red close button. The main area is divided into two tabs: 'Inputs' and 'Outputs'. The 'Inputs' tab is active, showing a table of GPIs. The table has three columns: 'Tallys', 'Presets', and 'Clock Triggers'. There are 8 rows of GPIs. GPI 2 is selected. The 'Outputs' tab shows a list of triggers: 'Alarm Trigger', 'Trigger2', 'Trigger4', 'Trigger6', and 'Trigger8'. At the bottom of the window, there is a 'Group' dropdown menu and 'OK' and 'Cancel' buttons. A mouse cursor is pointing at the 'OK' button.

Pins	Inputs	Presets	Clock Triggers	Outputs
1	☒ Tally 1	☐ Preset 1		Alarm Trigger
2	☒ Tally 2	☐ Preset 2	☐ Count Up	Trigger2
3	☒ Tally 3	☐ Preset 3		Trigger4
4	☒ Tally 4	☐ Preset 4	☐ Count Down	Trigger6
5	☒ Tally 5	☐ Preset 5		Trigger8
6	☒ Tally 6	☐ Preset 6	☐ Pause	
7	☒ Tally 7	☐ Preset 7		
8	☒ Tally 8	☐ Preset 8	☐ Next Preset Time	

Group:

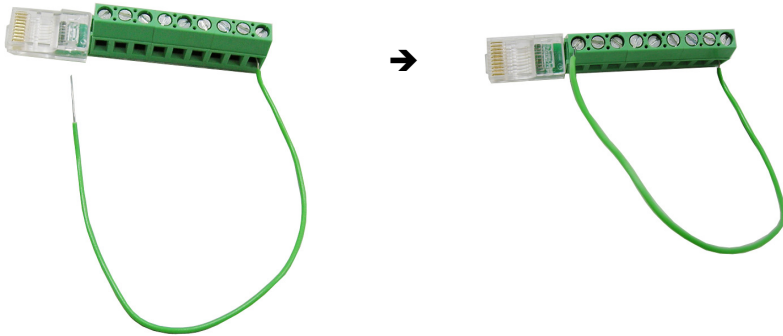
OK Cancel

2. After you have finished assigning tasks to each GPI, click **OK** to finalize the changes.

NOTE:

- The RJ-50-to-GPI terminal block adapter has eight positions that can each be used for setting tally and loading presets.
- By default, the terminal block is used to turn on / off the tally for each window:
 - Position 1 + GND = turns on main tally for window 1.
 - Position 2 + GND = turns on secondary tally for window 1.
 - Position 3 + GND = turns on main tally for window 2.
 - Position 4 + GND = turns on secondary tally for window 2.
 - Position 5 + GND = turns on main tally for window 3.
 - Position 6 + GND = turns on secondary tally for window 3.
 - Position 7 + GND = turns on main tally for window 4.
 - Position 8 + GND = turns on secondary tally for window 4.

Make sure that the RJ-50 GPI terminal block is inserted into the **GPI** port on the rear panel. The sample pictures below illustrate tapping the wire on position 1 to turn on the main tally for window 1.



Rainier Cascade In Mode

By default, the DVI input on the Rainier fills the entire screen behind the video windows (Cascade In mode). To enable the DVI input as a scalable window, select **Module Parameter**, and then uncheck the option **Rainier Cascade In mode** to unselect it.

Settings	Special Screen Layout	Help
Set Output Mode		
Video Standard ▶	Module Reset	
✓ Flashing Window Border	IP Address	
Reconnect (Network)	Y Delay	
Reconnect (COM Port)	Auto Parameter ▶	
Frame Memory Bypass ▶	Output Timing ▶	
Set Cascade In ▶	Clock Window	
Cascade In Auto Scan ▶	Cascade In VGA Only	
System Parameter ▶	Tally	
Group Parameter ▶	VGA to Background	
Module Parameter ▶	Analog Clock / Screen Logo ▶	
Import (.txt) ▶	GPI Definitions	
Export (.txt) ▶	Preset Time	
	ACC Setup	
	ACC Alarm	
	VCC OSD	
	TSL	
	Rainier Cascade In mode	
	VGA Auto Setting ▶	
	VGA Auto Detect ▶	
	VGA Auto Detect (Gain) ▶	
	Frame Lock (Fullscreen mode)	
	Line Lock	
	VCC8000 BMP Label Resources	
	NTSC Black Level ▶	
	Frame Memory Status ▶	

The **DVI-I Input** will be a yellow window that will appear in the **Option** window.

The image shows a software window titled "Option - Simulation". It contains several configuration sections:

- Style:** Master - Rainier-4U1v
- IP:** 210.100.100.151
- Group:** 1
- Select ID or Add to Other Group:** Radio buttons for IDs 1 through 15. ID 1 is selected.
- Sub ID:** Radio buttons for Sub IDs 1 through 4. Sub ID 1 is selected.
- Image Window & Label Switch:** A table of checkboxes for different inputs.

	W	L		W	L
☒ Input 1	☒	☒	☒ Input 2	☒	☒
☒ Input 3	☒	☒	☒ Input 4	☒	☒
☒ DVI-I Input	☒	☒	☐	☐	☐
☐	☐	☐	☐	☐	☐

At the bottom, there are buttons for "Load File", "Save File", "Fader Control", "Adjustment", "Image Trim", "Position Fine Adjustment", "Size Fine Adjustment", "Check Audio", and "Set COM A".

VGA Auto Setting

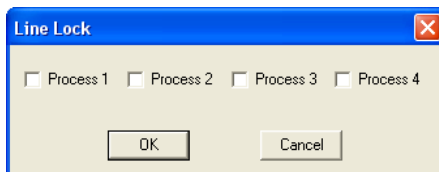
When using a VGA signal with the **DVI-I Input** on the Rainier, there will be times when the image is not aligned in the window or the color is off. The **VGA Auto Setting** feature was designed to overcome these issues.

Click **Settings→Module Parameter→VGA Auto Setting**, and then select **Auto Image Adjustment** to align the VGA image inside the window or **Auto Gain** to correct the color values.

NOTE: Some VGA-to-DVI cables may not work with the **DVI-I Input / DVI-I Output** ports of the Rainier; use the proprietary VGA-to-DVI adapter instead.

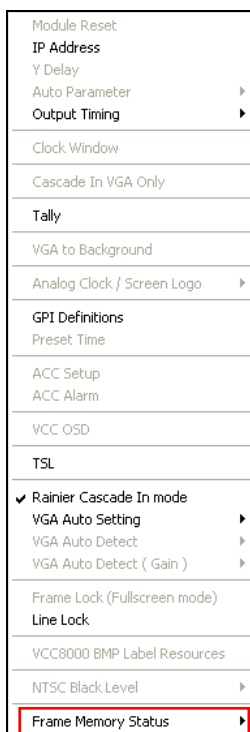
Line Lock

This feature was designed for the PELCO video camera # CCC1380UH-6 and it only supports the composite (PAL / NTSC) video source. **Process 1 – 4** is equivalent to windows 1 – 4.

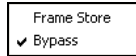


Frame Memory Status

1. Click to select **Frame Memory Status**.



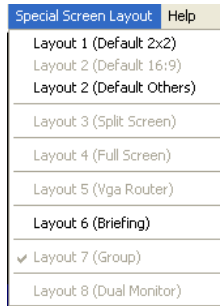
- The following menu appears. This allows the image from the DVI cascade input not to pass through the image scaling processor DDR for processing. Rather, it will bypass to the display output port. This will lessen the occurrence of frame delay when multiple Rainier modules are cascaded. No special setting is required, as the firmware can automatically detect and perform the frame memory bypass function.



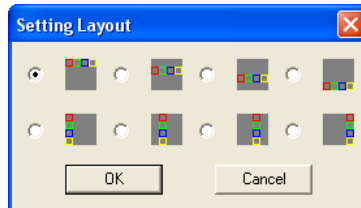
IMPORTANT: Make sure when making the hardware connections that the module **ID** must be set at **0** and the **DVI-I Input** must be used to connect other than the Rainier's **DVI Output** signal. This means that the sequence of connection must be as follows: **PC DVI Output→ID 0 DVI-I Input, ID 0 DVI-I Output→ID 1 DVI-I Input, ID 1 DVI-I Output→ID 2 DVI-I Input, ID 2 DVI-I Output→ID 3 DVI-I Input, ID 3 DVI-I Output→monitor display.**

Special Screen Layout Menu

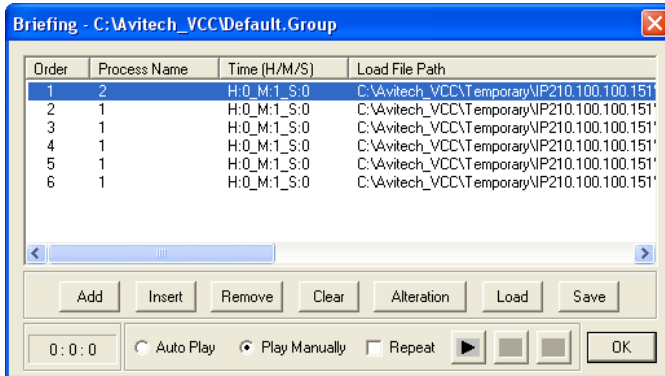
Some special screen layouts are available for the Rainier (layouts that are grayed-out signify non-availability for your particular configuration):



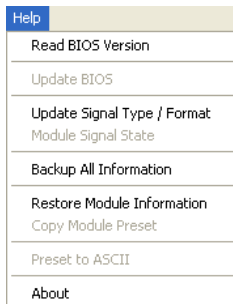
- Layout 1 (Default 2x2)** – quad split mode
- Layout 2 (Default Others)** – rows or columns of four windows



- **Layout 6 (Briefing)** – cycle between presets for a slideshow effect



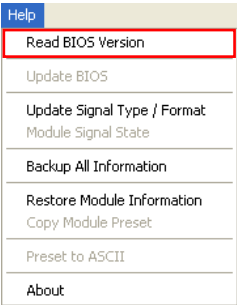
Help Menu



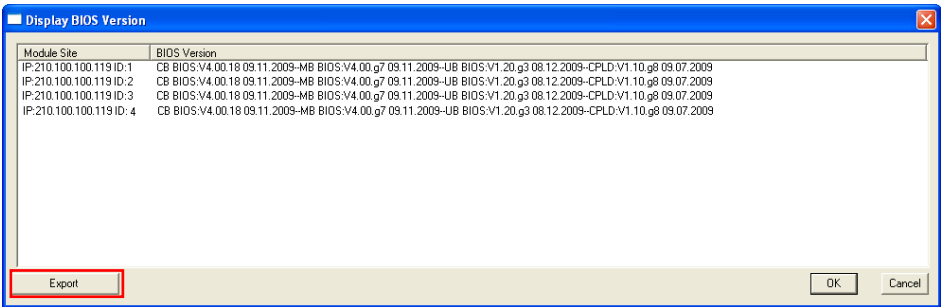
Read BIOS Version

To find out the Avitech Rainier module firmware version, perform the following steps:

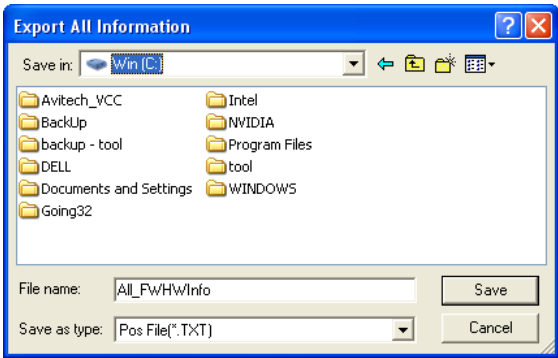
1. Click **Help**, and then click **Read BIOS Version**.



2. Click **Export**.



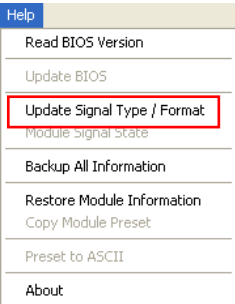
3. Assign a filename and click **Save** to save the data.



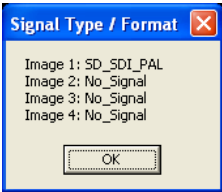
Update Signal Type / Format

To update Signal type / format, perform the following steps:

1. Click **Help**, and then click **Update Signal Type / Format**.



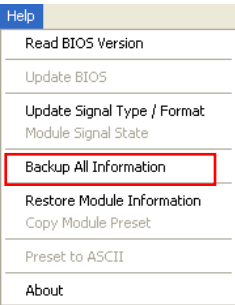
2. The next screen shows the entire image's signal type / format.



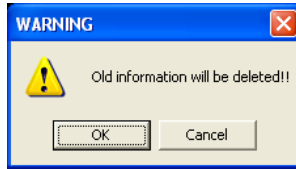
Backing Up Presets

To back up a preset, perform the following steps:

1. Click **Help**, and then click **Backup All Information**.



2. The following warning message appears, click **OK** to continue.



3. The following warning message appears when back-up is successful, click **OK** to continue.



This will back up all saved presets and system configuration files to your computer hard drive's

“c:\Avitech_VCC\Backup\IPxxx.xxx.xxx.xxx\xxxx#_#” or

“c:\Avitech_VCC\Backup\COM_1\xxxx#_#” folder.

WARNING: Everything in the **Backup** folder will be erased. If you have previously backed up presets, they will all be written over when you back up presets again. If you want to keep the old presets, move the entire **Backup** folder to a temporary directory (e.g., c : \temp).

This will create the following directories:

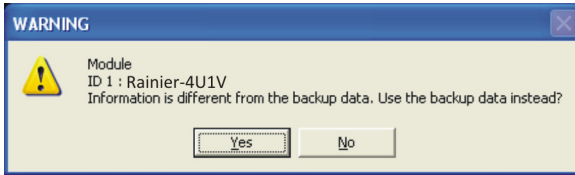
- “c:\Avitech_VCC\Backup\”
- “c:\Avitech_VCC\Temporary”

Restoring Presets

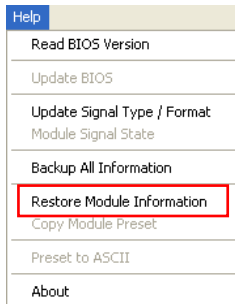
To manually restore a preset, perform the following steps:

1. Set the Rainier to the factory-default value (refer to Chapter 4 **Resetting to the Factory-Default State** for details).
2. Make sure that the rotary **ID** of the Rainier being restored matches the old module (if the same module is not being restored), and that the form of communication is the same (IP or RS-232).

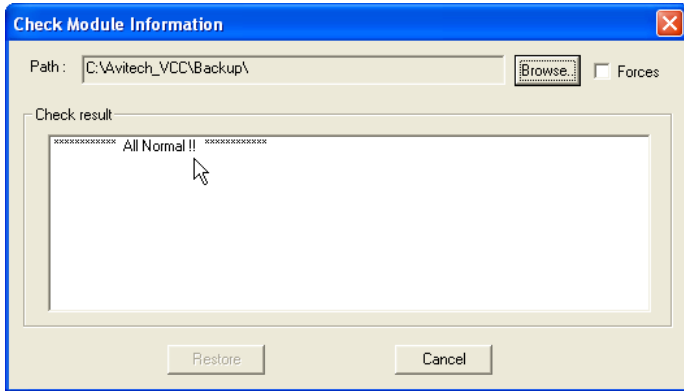
3. If the backup content is somewhere else other than at the “c:\Avitech_VCC\Backup\IPxxx.xxx.xxx.xxx\xxxx#_#” or “c:\Avitech_VCC\Backup\COM_1\xxxx#_#”, copy the backup data “xxxx#_#” into the “c:\Avitech_VCC\Backup\IPxxx.xxx.xxx.xxx\” or “c:\Avitech_VCC\Backup\COM_1\” location.
4. Run the Galaxy software and select **Yes** when prompted whether to restore the module using the backup data.



5. Click **Help**, and then click **Restore Module Information**. You should see a progress bar showing the preset being loaded into the Rainier.

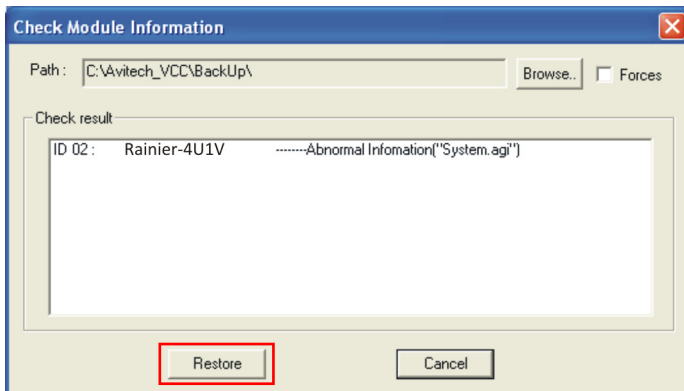


6. When the following screen appears, the checking result confirms that everything is normal. If that is the case, click **Cancel** to exit restoring of preset(s). You may skip steps 7 and 8.



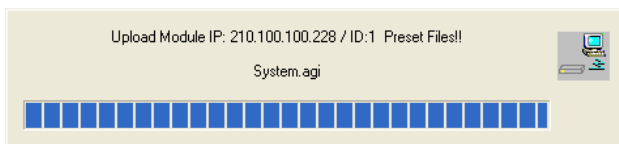
NOTE: You can click to enable the **Forces** checkbox (located on the upper right corner) that allows the backup information to be written to all the module(s) flash memory. The **Restore** button will then be enabled so you can click on it.

If the checking results shows an **Abnormal** report, confirm if the backup **Path** is correct. Then click **Restore**.

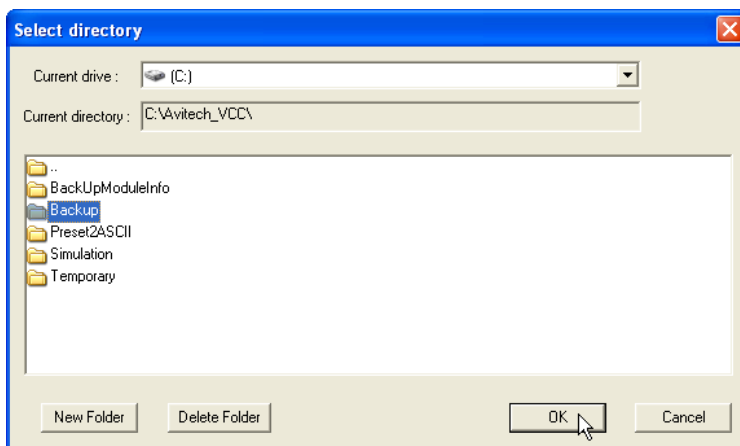


NOTE: You can click to enable the **Forces** checkbox (located on the upper right corner) that allows the backup information to be written to all the module(s) flash memory.

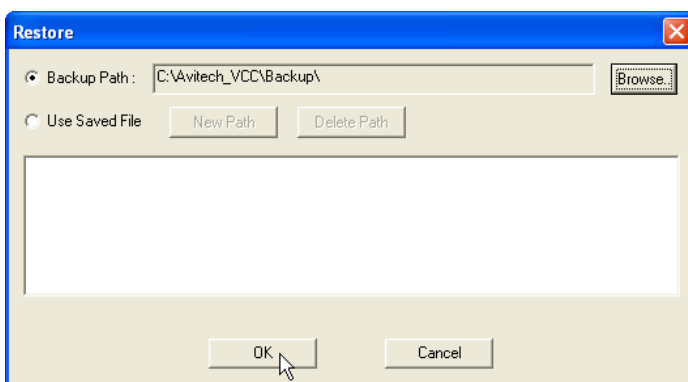
The progress of the restore process will be shown.



If the backup **Path** is incorrect, click **Browse** to select the correct location. Then click **OK** to continue.



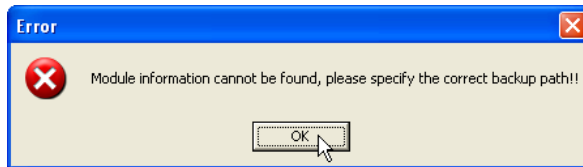
7. Click **OK** when the next screen appears to continue.



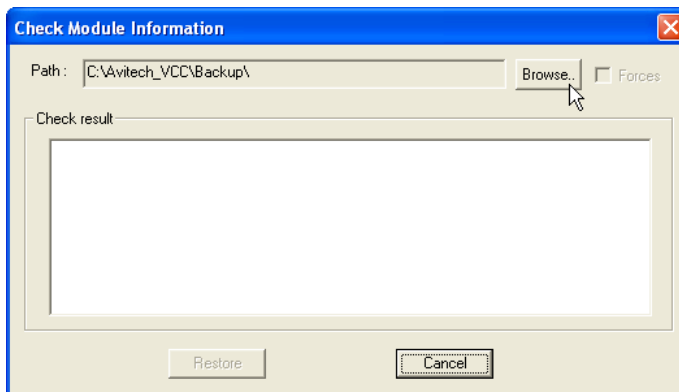
8. Click **OK** when the next screen appears to restart the Galaxy software.



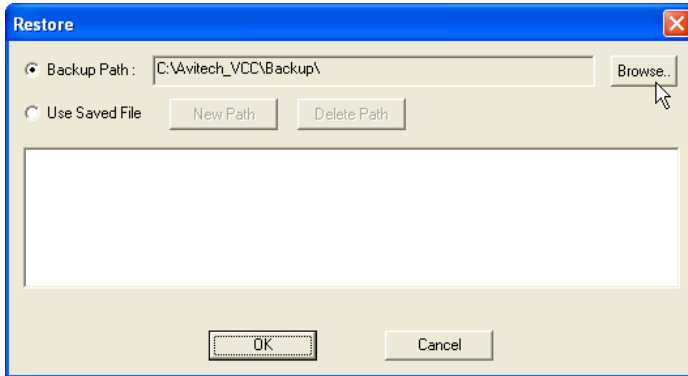
NOTE: If upon clicking **Restore Module Information** on the **Help** menu and the following error message appears, click **OK**.



On the next screen, click **Browse**.

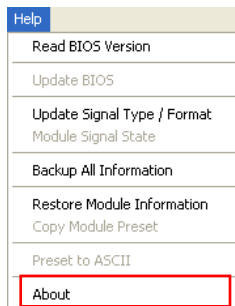


On the next screen, click **Browse** again to specify the correct backup **Path**.



Read Galaxy Information

1. Click **Help**, and then click **About**.



2. You should see a pop-up box showing the Galaxy software information.



Quick Keys – Change Window to / from Full Screen Mode; Swap Window Contents

Two quick keys are available that allow you to quickly bring a window to / from full screen mode, as well as swap the contents from one window to another by performing the following steps:

1. To change to full screen mode, double-click the mouse on a window. Double-click again to return from full screen mode.
2. To access the swap window quick key, move your cursor to the bottom left hand corner of a window until a capital letter **S** appears.



3. Click on the capital letter **S** to select the source window and then click again at a destination window where you want to swap the contents from the source. This will swap all the contents and properties of the source window to the destination window.

Window Layout

Setting the Default Layout (by Group)

When you have multiple units cascaded together, you can quickly show all the windows by selecting **Settings→Group Parameter→Set Default Layout**.

Arranging Windows (by Group)

To quickly set up the layout for your video windows, right-click the mouse on the title bar to access the **Group Layout** menu. Select from **2x2** up to **10x10** as possible grid positions on the monitor display.



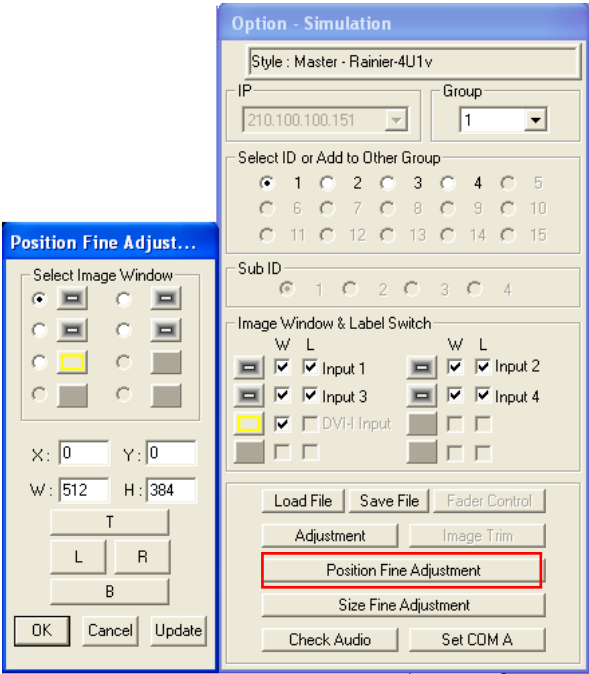
Repositioning an Individual Window

To reposition a window, perform the following steps:

1. Drag the center of a window and drop to a new position and it will update on the monitor display. Or,

Option Window

- 2. Use the **Position Fine Adjustment** menu to adjust the position of any window on a pixel by pixel basis. Keep in mind that the width increases in 16 pixel increments and the height in 1 pixel increments.



Mouse Right-click Menu

To change the properties of an individual window, right-click the mouse on the particular window to access the window’s menu.

Size	▶
Full Screen	
Select Source	▶
Check Signal	
Set Meter	
Label	
Set Border	
UnderScan	
Bring clock, logo or ACC UI Window to Top	
VGA Auto Setting	▶
TSL	
Aspect Auto Detect	

Resizing Window

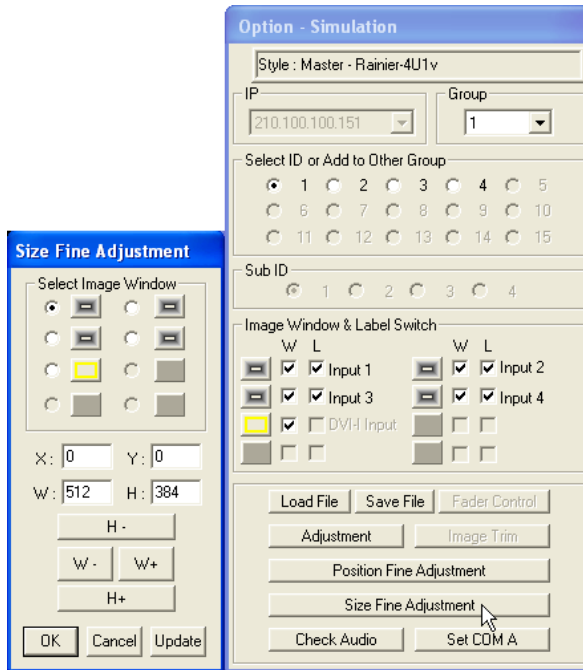
To resize a single window to one of the preset sizes, perform the following steps:

- 1. Right-click the mouse on a particular window and select **Size**, followed by the desired preset size selection. Or,

Size	▶	1/1
Full Screen		1/4
Select Source	▶	1/9
Check Signal		1/16
Set Meter		1/25
Label		1/36
Set Border		1/64
UnderScan		Set Aspect Ratio (4:3)
Bring clock, logo or ACC UI Window to Top		Set Aspect Ratio (16:9)
VGA Auto Setting	▶	Input Aspect Ratio
TSL		Lock Aspect Ratio
Aspect Auto Detect		View(16:9) Image(4:3)

| NOTE: This option is not available for the scalable DVI input.

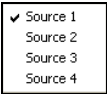
2. Resize a window by dragging the border of a window to the desired size. Keep in mind that there is a scaling limitation for each window that limits the maximum scalable size to 816×465 pixels for NTSC video; 816×560 for PAL video; and 960×600 for HD-SDI video.
3. Another option is to use the **Size Fine Adjustment** menu to adjust each window on a pixel by pixel basis. Keep in mind that the width increases in 16 pixel increments and the height in 1 pixel increments.



4. On a particular window, select **Full Screen** to maximize the image to full screen.

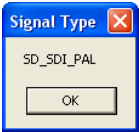
Select Source

This allows you to copy the input signal source from one process window (e.g., Window 1) to another process window (e.g., Window 2), within the same module only. Window 2 will then display the same image as Window 1. Right-click the mouse on a particular window, then click **Select Source**. The following menu appears. The selected source has a checkmark.



Check Signal

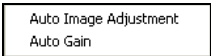
To determine if the video signal is being fed into the selected window, right-click the mouse on a particular window and click **Check Signal**. The following screen appears.



VGA Auto Setting

When using a VGA signal with the **DVI-I Input** on the Rainier, there will be times when the image is not aligned in the window or the color is off. The **VGA Auto Setting** feature was designed to overcome these issues.

Right-click the mouse on the DVI-I Input window, click **VGA Auto Setting**, and then select **Auto Image Adjustment** to align the VGA image inside the window, or **Auto Gain** to correct the color values.

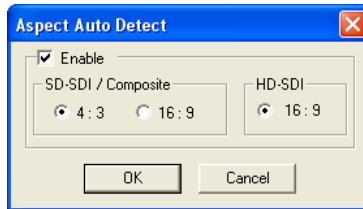


NOTE: Some VGA-to-DVI cables may not work with the **DVI-I Input / DVI-I Output** ports of the Rainier; use the proprietary VGA-to-DVI adapter instead.

Aspect Auto Detect

This allows you to set the input signal's aspect ratio for a particular window. If the input signal is of a different aspect ratio than the monitor in which it is displayed, you may change the monitor's aspect ratio to display the signal without deformation.

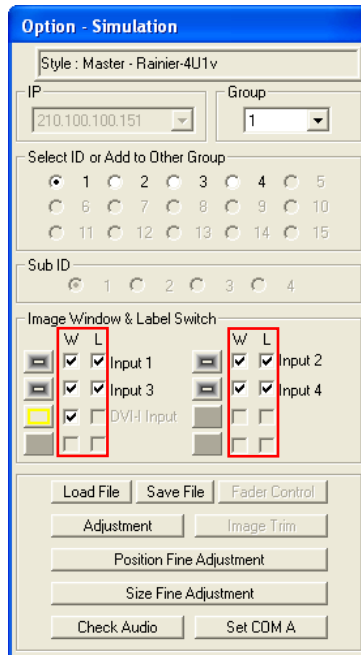
1. Select **Enable**, and then select the desired aspect ratio.



2. Click **OK**. The available selection for HD-SDI is **16:9**, while for **SD-SDI / Composite** you can switch between **4:3** and **16:9**.

Turning On / Off the Window / Label

1. The **Option** window has two check boxes that can be used to close an image window (**W**) or turn off the label (**L**) for each window.



2. To turn off a window or label, find the checkbox that represents the selected window and check to enable or un-check to disable the **Window** or **Label**.

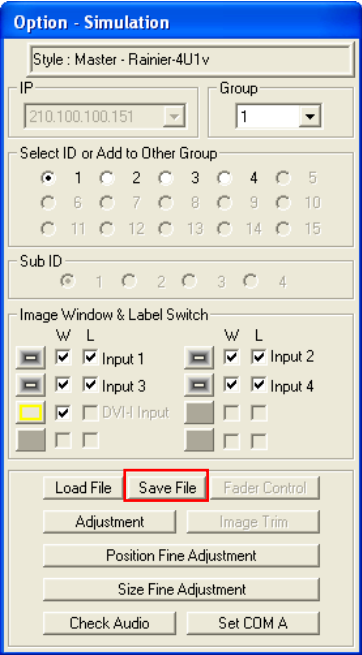
Saving to a Flash File

There are two instances when you will need to use the save to flash feature:

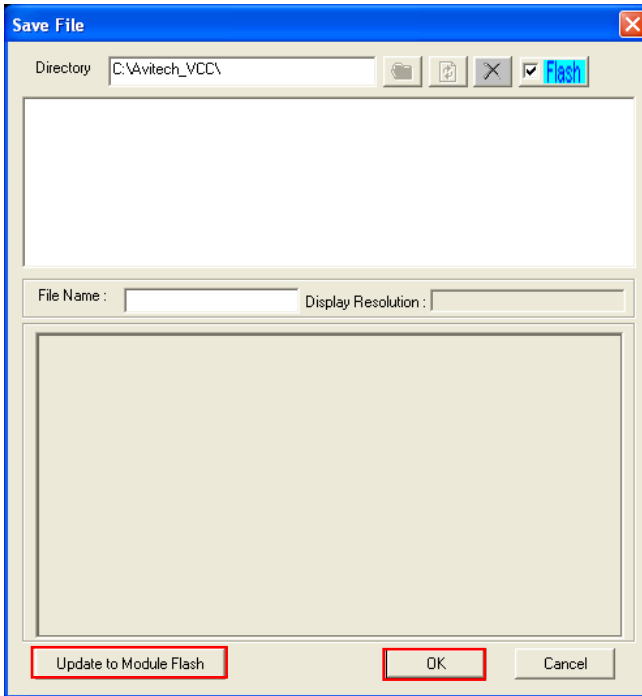
- After creating the master layout and you want the Rainier to load it again when the unit is power cycled (shutdown and restart).
- After you are done saving presets and you want to save all the presets that were created into the internal flash memory of the module. If this action is skipped, the module will lose all the presets that were created.

To save to flash, perform the following steps:

1. Click **Save File** in the **Option** window.



2. Click **Update to Module Flash**, and then click **OK**. Or, close the Galaxy software and select **Yes** when prompted to save.



Saving a Preset

All the presets you create are stored in the Rainier and not in the computer that is running the Galaxy software. In order to write all the presets into the internal flash memory of the Rainier after creating it, you will need to save to flash. To save a preset, perform the following steps:

1. Configure the layout to how you want it to display.

2. Click **Save File** in the **Option** window.

Option - Simulation

Style : Master - Rainier-4U1v

IP: 210.100.100.151 Group: 1

Select ID or Add to Other Group

☒ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10
☐ 11 ☐ 12 ☐ 13 ☐ 14 ☐ 15

Sub ID: ☐ 1 ☐ 2 ☐ 3 ☐ 4

Image Window & Label Switch

	W	L		W	L
☒ Input 1	☒	☒	☒ Input 2	☒	☒
☒ Input 3	☒	☒	☒ Input 4	☒	☒
☒ DV/H Input	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐

Load File **Save File** Fader Control

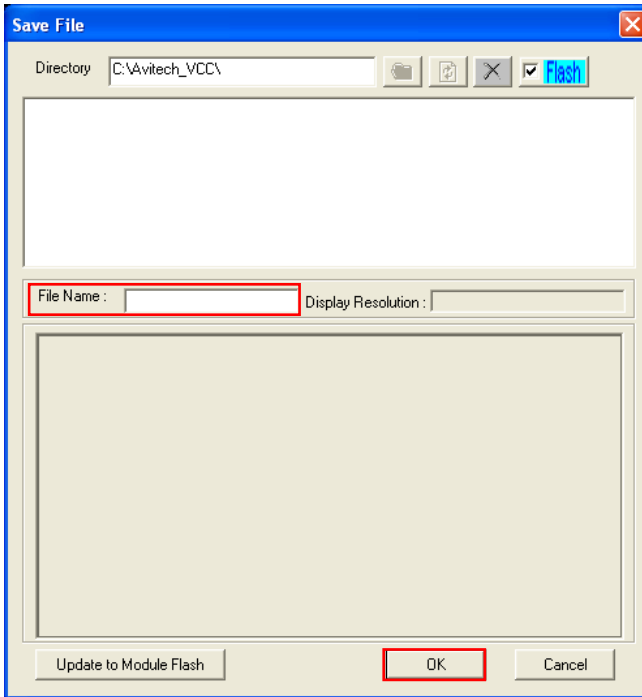
Adjustment Image Trim

Position Fine Adjustment

Size Fine Adjustment

Check Audio Set COM A

3. When the next screen appears, enter a unique filename for the preset, and select **OK** to save.



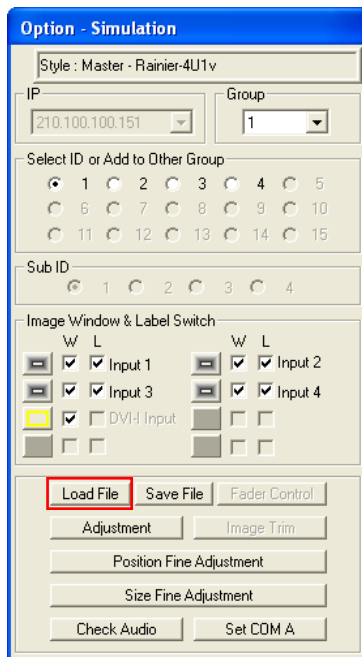
- When using a keypad, use the numbers **0 – 9** for your preset names.
- When using the GPI, use the numbers **1 – 8** for your preset names.

The file extension **GP#** will be automatically added to the file name.

4. Repeat the above steps for each additional preset.
5. After you are done creating presets, load the file that you want to be the master layout, which gets loaded when the Rainier is powered on.
6. Close the Galaxy software and select **Yes** when prompted to save to flash.

Loading File

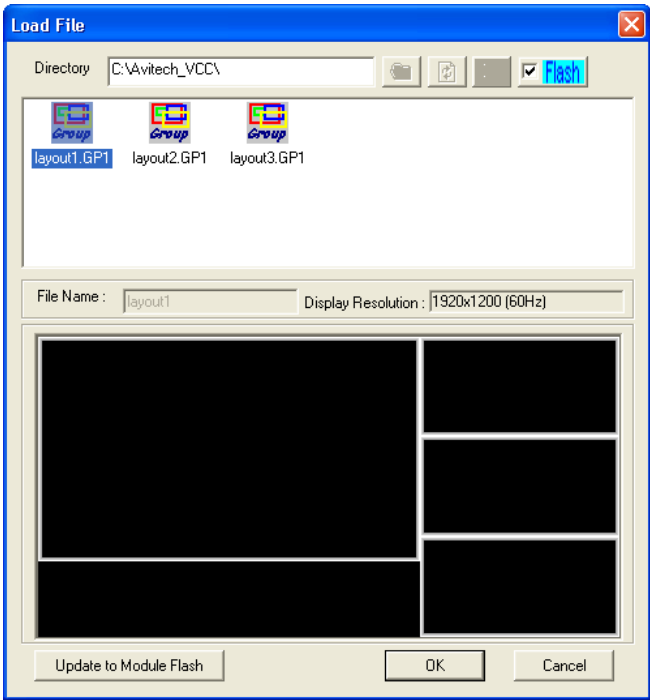
1. In the **Option** menu, click **Load File**.



The image shows a software window titled "Option - Simulation". It contains several configuration sections:

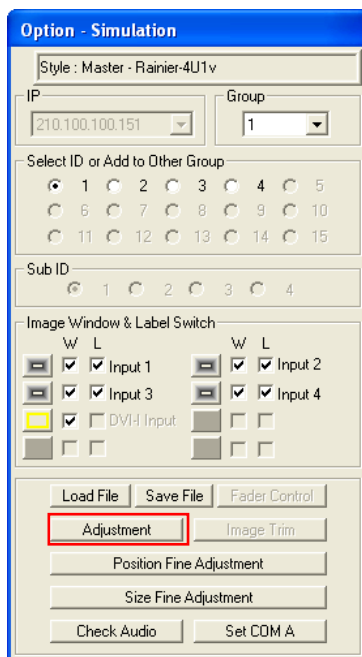
- Style:** Master - Rainier-4U1v
- IP:** 210.100.100.151
- Group:** 1
- Select ID or Add to Other Group:** A grid of radio buttons for IDs 1 through 15. ID 1 is selected.
- Sub ID:** A row of radio buttons for sub-IDs 1 through 4. Sub-ID 1 is selected.
- Image Window & Label Switch:** Two columns of checkboxes. The left column has checkboxes for Input 1, Input 3, DVI-I Input, and an unlabeled input. The right column has checkboxes for Input 2, Input 4, and two unlabeled inputs. Input 1, Input 3, and Input 2 are checked.
- Buttons:** A row of buttons: "Load File" (highlighted with a red box), "Save File", and "Fader Control". Below this are several other buttons: "Adjustment", "Image Trim", "Position Fine Adjustment", "Size Fine Adjustment", "Check Audio", and "Set COM A".

2. Select a saved file, and then click **OK** to load the preset.

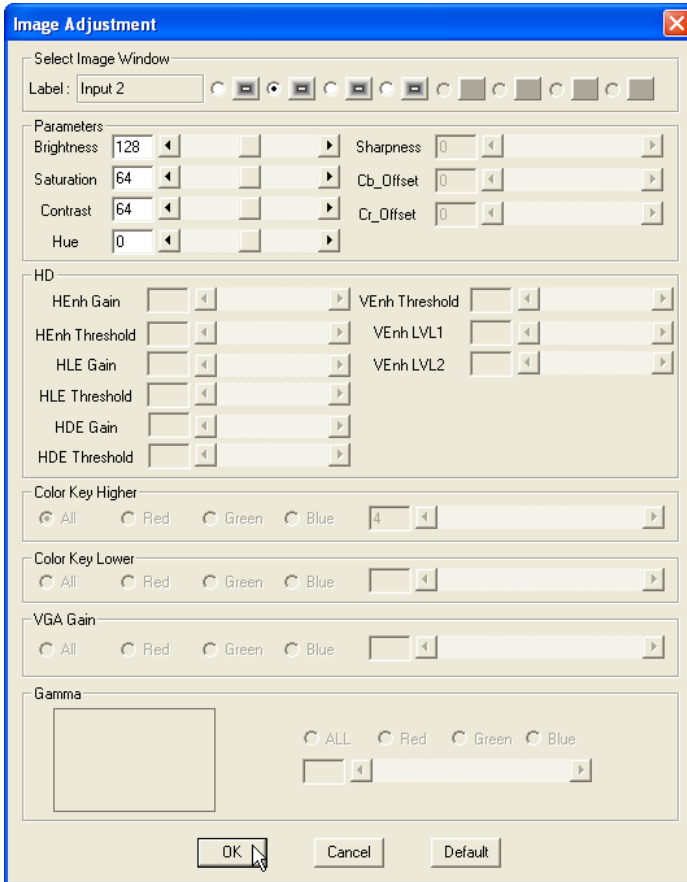


Making Adjustments

1. In the **Option** menu, click **Adjustment**.



2. The following screen appears.

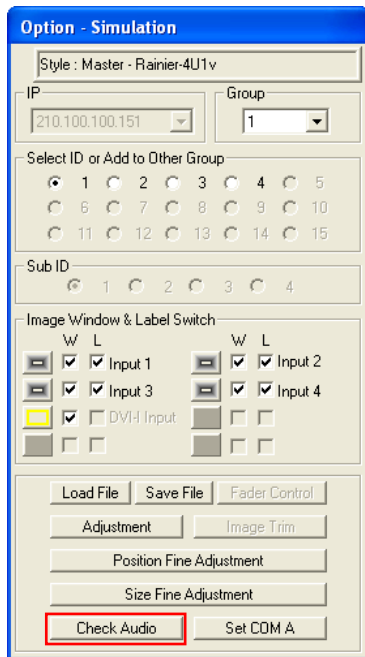


3. **Select the Image Window**, then you can adjust the input signal, such as **Brightness (0 – 255)**, **Saturation (0 – 127)**, **Contrast (0 – 127)**, and **Hue (–128 – 127)** parameters, directly by using the sliders or clicking the radio button. Click the **Default** button on the lower right portion of the screen to reset the values to the factory-default.

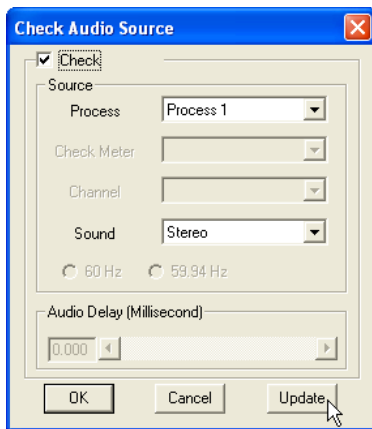
| NOTE: The **Hue** parameter can only be adjusted when using composite video.

Audio Monitor

1. In the **Option** menu, click **Check Audio**.



2. When the following screen appears, click the audio **Check** option.



3. Select the **Source** (**Process 1 – 4**).
4. Then select the **Sound** (**Stereo, Mono Left, Mono Right**).

2

Simplified Control Panel

Aside from using the Galaxy software to control your Rainier module, you can use the optional numerical Simplified Control Panel (SCP) keypad that allows you to quickly recall presets without having to use a computer. This chapter familiarizes you with using the Simplified Control Panel to load up to ten presets, saved in the flash memory of the Rainier module.

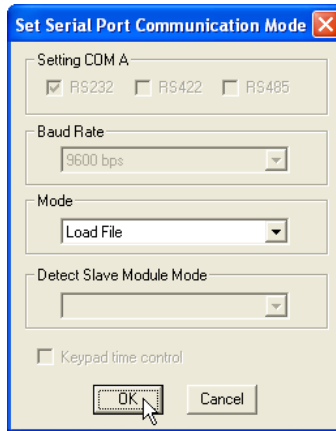
2.1 Using the Simplified Control Panel (Optional)

Preparing the Rainier for Use with the SCP Keypad

To prepare the Rainier for use with the Simplified Control Panel, perform the following steps:

1. Create up to ten presets with filenames **0 – 9** (up to ten groups). Refer to the previous chapter on saving presets.

2. Click **Settings**→**Group Parameter**→**COM A**. When the next screen appears, select **Load File** on the **Mode** drop-down menu. Then click **OK**.



3. You will be prompted to shut down the Galaxy software and save to flash.
4. Power off the Rainier by unplugging the power cord. Then, plug in the SCP keypad to the rear panel's **Keypad/RS-232** port.
NOTE: If you need to connect again using the Galaxy software, you must first disconnect the SCP keypad.
5. Connect the power cord back to the Rainier to power on.

Recalling Presets

The Rainier COM port is automatically set to the following parameters:

- RS-232
- 8-bit data
- 1-stop
- No parity
- 9600 bps baud rate

To recall the presets, perform the following steps:

1. To login to the Simple Control Panel mode, press **Enter**.
2. Use the Galaxy software's preset files saved in the Rainier flash memory.

The preset filename format is: **X.GPY**

where **X** = **1 – 26**, this refers to preset **1** – preset **26**

where **Y** = **1 – 9**, this refers to group **1** – group **9**

3. Recall preset mode 1:
To recall the next preset file, press the **+** (plus) key.
To recall the previous preset file, press the **-** (minus) key.
4. Recall preset mode 2:
To recall a specific preset file, press the two number keys. The first number signifies the Group number, the second number signifies the preset number. For example: pressing the **19** number keys would allow Rainier to recall the "**9.GP1**" preset file.
5. Recall preset mode 3 (supports recall of preset files **0 – 26**):
Example 1: pressing **1** (one) → **.** (point or period) → **1** (one) → **Enter** (total of four keys) would allow Rainier to recall the "**1.GP1**" file.
Example 2: pressing **2** (two) → **.** (point or period) → **1** (one) → **7** (seven) → **Enter** (total of five keys) would allow Rainier to recall the "**17.GP2**" file.
Example 3: pressing **3** (three) → **.** (point or period) → **2** (two) → **6** (six) → **Enter** (total of five keys) would allow Rainier to recall the "**26.GP3**" file.
6. To save the Rainier's present configuration: press ***** (star or asterisk) → **/** (slash) → **Enter** (total of three keys). During this process (approximately five seconds), make sure that your Rainier has a stable and uninterrupted power supply.
7. When the DVI-I port has an analog VGA input, the Rainier can do automatic image adjustment by pressing the following three keys:
. (point or period) → ***** (star or asterisk) → **Enter**.
8. When the DVI-I port has an analog VGA input, the Rainier can do automatic gain adjustment by pressing the following three keys:
. (point or period) → **/** (slash) → **Enter**.

9. To logout from the Simple Control Panel mode, unplug the SCP keypad from the rear panel's **Keypad/RS-232** port.

3

Avitech ASCII Protocol

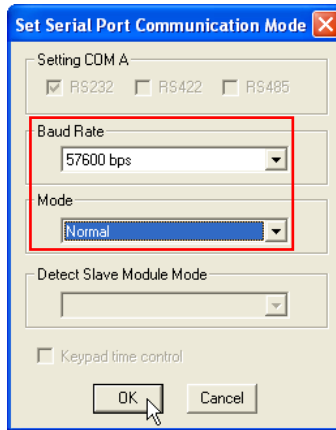
The Rainier supports the ASCII command prompt interface. You can use HyperTerminal to control your Rainier. The serial port (**Keypad/RS-232**) on the Rainier can also be used to interface with a third-party controller for control over RS-232. This chapter familiarizes you with using the Avitech ASCII Protocol (AAP) of the Rainier via Microsoft® Windows® HyperTerminal function as an example.

3.1 Setting the RS-232 Port

Before using the ASCII Z command interface, make sure that the COM A (RS-232) port on the Rainier is set at Normal (8-bit data, 1 stop bit, no parity, and no flow control). The default baud rate is 57600 bps. To correctly use the ASCII Z commands, use the Galaxy software's default Group and Module number for the Rainier.

NOTE:

- To set **COM A** to **Normal**, click **Settings→Group Parameter→COM A**. When the next screen appears, select **Normal** on the **Mode** drop-down menu. Then click **OK**.
- Disconnect the SCP keypad if that is connected.



3.2 Setting the HyperTerminal's COM Port

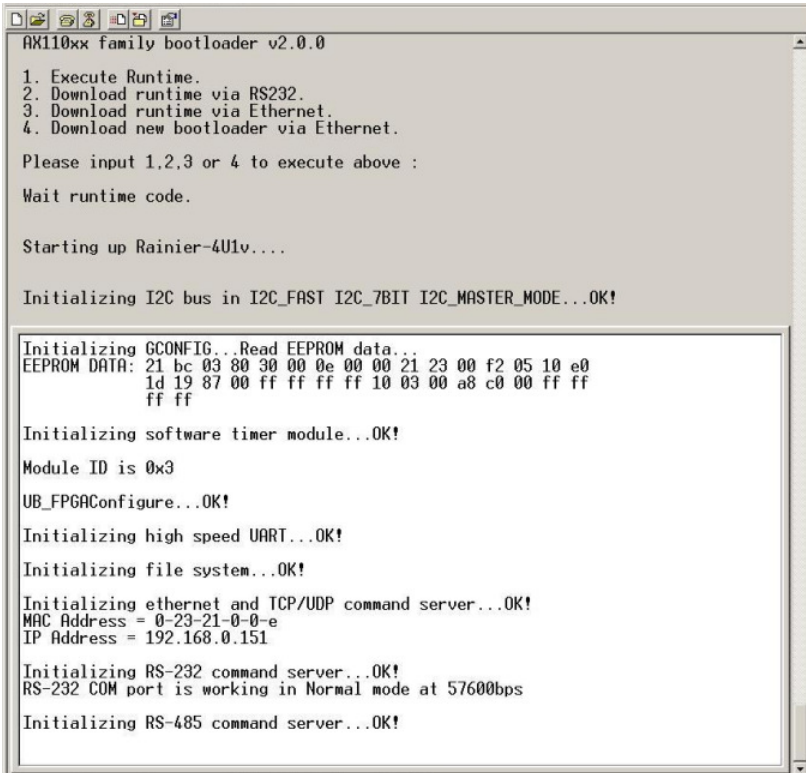
To set the HyperTerminal's COM Port, perform the following steps:

1. Click **Start→All Programs→Accessories→Communications→HyperTerminal** to startup the Windows HyperTerminal function.
2. Set the HyperTerminal's COM port to the following settings (same as RS-232 port setting):
 - Baud Rate: 57600
 - Data Bits: 8
 - Parity: None
 - Stop Bits: 1
 - Flow Control: None

3.3 Entering the ASCII Z Command Interface

To start up the ASCII Z command interface, perform the following steps:

1. Connect the HyperTerminal's COM port (computer) to the Rainier's RS-232 port and make sure that power supply is available.
2. Connect the power cord to the Rainier so that it will use the default baud rate (57600 bps) to transmit the startup signal.



```
AX110xx family bootloader v2.0.0

1. Execute Runtime.
2. Download runtime via RS232.
3. Download runtime via Ethernet.
4. Download new bootloader via Ethernet.

Please input 1,2,3 or 4 to execute above :

Wait runtime code.

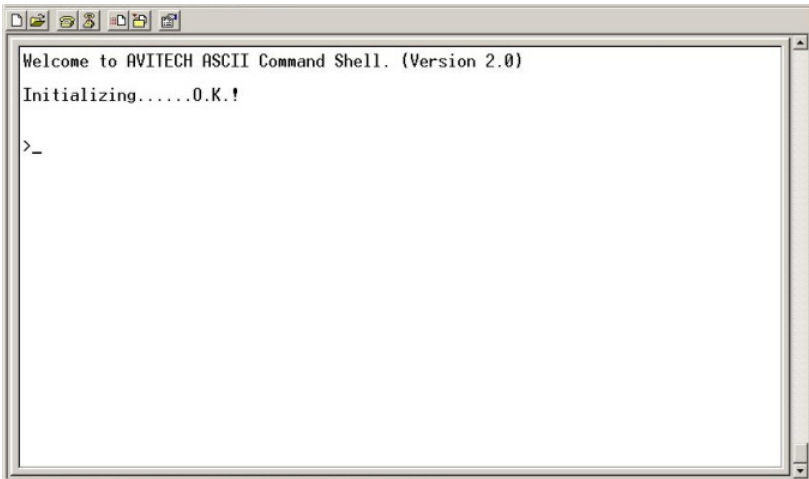
Starting up Rainier-4U1v....

Initializing I2C bus in I2C_FAST I2C_7BIT I2C_MASTER_MODE...OK!

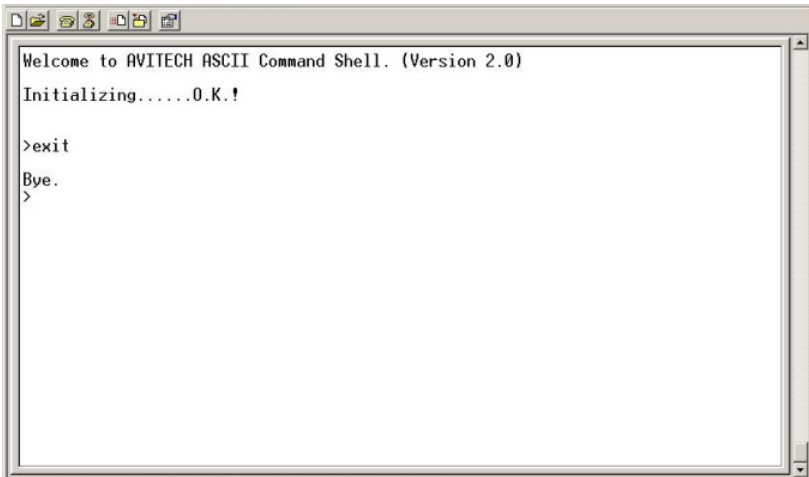
Initializing GCONFIG...Read EEPROM data...
EEPROM DATA: 21 bc 03 80 30 00 0e 00 00 21 23 00 f2 05 10 e0
               1d 19 87 00 ff ff ff ff 10 03 00 a8 c0 00 ff ff
               ff ff

Initializing software timer module...OK!
Module ID is 0x3
UB_FPGAConfigure...OK!
Initializing high speed UART...OK!
Initializing file system...OK!
Initializing ethernet and TCP/UDP command server...OK!
MAC Address = 0-23-21-0-0-e
IP Address = 192.168.0.151
Initializing RS-232 command server...OK!
RS-232 COM port is working in Normal mode at 57600bps
Initializing RS-485 command server...OK!
```

3. Press **Enter** to login to the ASCII Z command interface. When the HyperTerminal's command prompt ">" symbol appears, you can start entering ASCII Z commands.



4. To logout of the ASCII Z command interface, type **exit** and press **Enter**.



3.4 ASCII Z Command Format

The ASCII Z command is comprised of the following parts:

Header	Group/Module/Window Assignment	Parameter 1	Parameter 2	...
--------	--------------------------------	-------------	-------------	-----

The following is a list of rules to follow when entering the ASCII Z command:

- It is acceptable to enter commands in small or capital letters, and the five columns are separated by a space.
- **Header** = **z** + command character
- **Group/Module/Window Assignment (GMMPP)** = is comprised of six Arabic numerals. This is used in designating the device’s Group/Module/Window assignment.

Group = is comprised of the first two numbers (**01 – 99**), **00** is used to pertain to all groups.

Module = is comprised of the middle two numbers (**01 – 15**), **00** is used to pertain to all modules.

Window Assignment = is comprised of the last two numbers (**01 – 04**), **00** is used to pertain to all window assignments.

- **Parameter 1** of color assignment (**RRRGGBBB**) = is comprised of nine Arabic numerals, this is used in designating the color.
- **Parameter 2** of on / off switch = “**1**” signifies ON while “**0**” signifies OFF.

The following is a list of available ASCII Z commands:

ZC

Format: **ZC GGMMPP B[order]/L[abel] RRRGGG BBB** (red ratio **000 – 255**, green ratio **000 – 255**, blue ratio **000 – 255**) (**NoDimColor**)

Function: to set the border of the window (with / without 3D effect) and the label's background color.

Description: **B[order]** to signify the border of the window.
L[abel] to signify the label's background color.
[NoDimColor] to signify the border's 3D effect. You can add **[NoDimColor]** to remove the border's 3D effect. Just enter **NDC** to signify **NoDimColor**.

Examples: **ZC 010101 B 000255000**
sets the border color of group 1, module 1, window 1, as green with 3D effect.
ZC 020202 B 255000000 ndc
sets the border color of group 2, module 2, window 2, as red but without 3D effect.
ZC 030303 L 000000255
sets the label color of group 3, module 3, window 3, as blue with 3D effect.

ZF

Format: **ZF GGMMPP 1** (on) / **0** (off).

Function: to turn on / off the video window's full screen mode.

Examples: **ZF 010104 1**
sets group 1, module 1, window 4, to full screen mode display.
ZF 010104 0
disables full screen mode for group 1, module 1, window 4, and reverts it back to its former display size.
ZF 010105 1
sets group 1, module 1, cascade in source (**DVI-I Input** port) to full screen mode display.

ZJ

- Format:

ZJ GGMMPP I[image] / G[ain]
- Function:

to automatically adjust the analog VGA signal entering the **DVI-I Input** port of the Rainier.
- Description:

I[image] will automatically adjust the image's position and size.
G[ain] will automatically adjust the image gain.
- Examples:

ZJ 000000 I

automatically adjust the image's position and size on all the module(s) for all the group(s).

ZJ 020000 G

automatically adjust the image gain on all the module(s) in group 2.

ZM

- Format:

ZM GGMMPP ## (resolution number).
- Function:

to change the output resolution, the resolution number refers to the list of resolutions that Rainier supports.
- Description:

Resolution	Vertical Frequency		
	50 Hz	60 Hz	75 Hz
800 × 600	42	1	47
1024 × 768	31	2	11
1280 × 720	30	15	48
1280 × 768	32	22	49
1280 × 1024	29	9	12
1360 × 768	38	20	21
1400 × 1050	34	35	50
1440 × 900	46	45	51
1600 × 1200	39	10	52
1680 × 1050	41	40	53

Resolution	Vertical Frequency		
	50 Hz	60 Hz	75 Hz
1920 × 1080	28	26	N/A
1920 × 1200	37	36	N/A

Examples: **ZM 010000 10**
 sets all the modules in group 1 to display at 1600×1200 resolution at 60 Hz vertical frequency.

ZM 000000 9
 sets all the modules in all the groups to have a 1280×1024 resolution at 60 Hz vertical frequency.

| NOTE: The maximum resolution for Rainier-4a / 4d is 1440×900.

ZP

Format: **ZP GGMMPP L[oad] / S[ave] filename.GP#**

Function: load a previously saved preset or save current layout to a preset.

Description: If the filename includes space(s), use double quotation marks to signify the complete filename.
 If the filename is not specified when saving the file, system will backup the file into flash memory.

Examples: **ZP 000000 L 1.GP1**
 sets all the modules in all the groups to load the previously saved **1 . GP1** preset file.

ZP 020000 S 2.GP2
 saves the current layout of all modules in group 2 to a preset file **2 . GP2**.

ZP 000000 S
 saves the file of all modules in all the groups into flash memory.

ZT

Format: **ZT GGMMPP 1 [tally 1] / 2 [tally 2] 1 (on) / 0 (off) # (color index number)**

Function: turn on or off tally for a window or all the windows in a group. The color index number is a list of colors that tally can be.

Description: Designate the action of tally. The following table shows the color index.

Index	Color
1	Null
2	Red
3	Green
4	Yellow
5	Blue
6	Pink
7	Light Blue
8	White

Examples: **ZT 000000 2 1 6**
activate tally 2 for all the window(s) in all the module(s) for all the group(s) with pink color.
ZT 010203 1 0
close tally 1 for group 1, module 2, window 3.

NOTE: Upon changing a tally color, the same color is applied to the other tally of the same module.

ZX

Format: **ZX GGMMPP** “label text” (supports ASCII characters only – include the quotation marks) **#** (font size 1 – 4)

Function: to change the label text and font size.

Description: Include the quotation marks when entering the label text.
The label will appear center-aligned on the window (maximum of 32 characters for each label).

Examples: **ZX 000000 "Input 1"**

Input 1 will appear as the label for all the window(s) in all the module(s) of all the group(s).

ZX 000000 3

sets all window's label font size to 3.

A

Firmware Upgrade

This chapter familiarizes you with updating the firmware of your Avitech Rainier module and describes the process for resetting it to the factory-default state. Updating the firmware is divided into two main processes:

- Device driver installation (when you need to use the USB-to-RS-232 converter on the computer to update the firmware)
- Firmware update process (three stages)

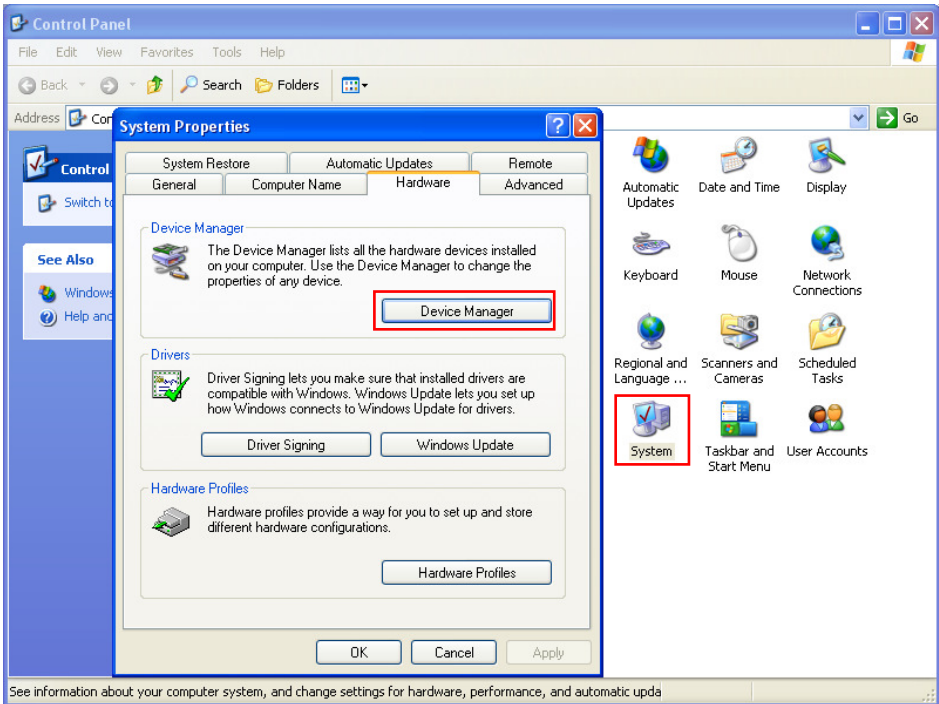
A.1 Installing the Device Driver

NOTE: You need to install the device driver only if the computer does not have a serial (RS-232) port and you need to use the USB-to-RS-232 converter.

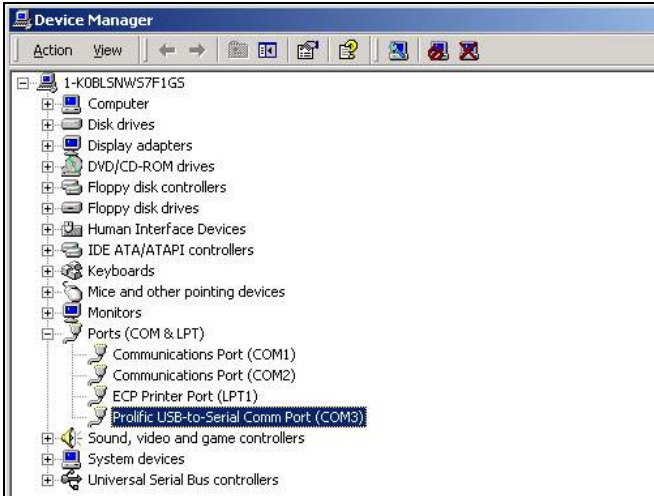
To install the device driver, perform the following steps:

1. Insert the included USB-to-serial converter's USB port side into a port on your computer. The computer's Plug-n-Play's feature will detect the new device and request for the device driver.
2. Insert the driver disc included on the USB-to-serial converter package into the optical drive of your computer and the autorun program should automatically start. If you need to start the program manually, run the "autorun.exe" program of the driver disc.
3. Select the picture on the screen that corresponds to your type of product by clicking on it and follow the onscreen instructions to complete the driver installation. The User Manual is also included on the driver disc.

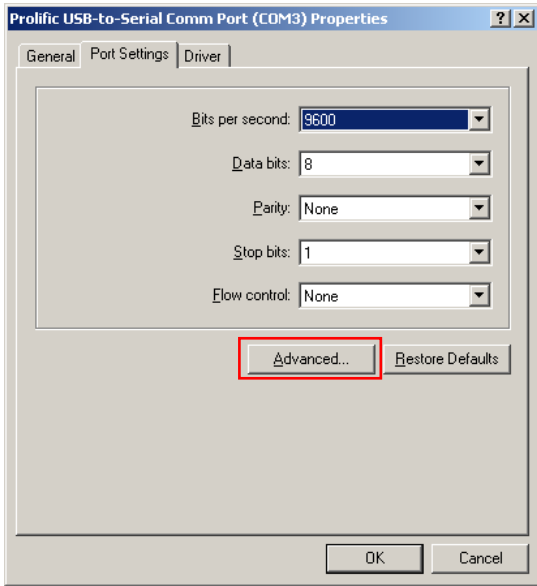
4. After successfully installing the device driver, the computer can now detect the USB-to-serial converter device name. To check, click **Start→Control Panel**. Double-click the **System** icon and when the **System Properties** screen appears, select the **Hardware** tab and then click the **Device Manager** button.



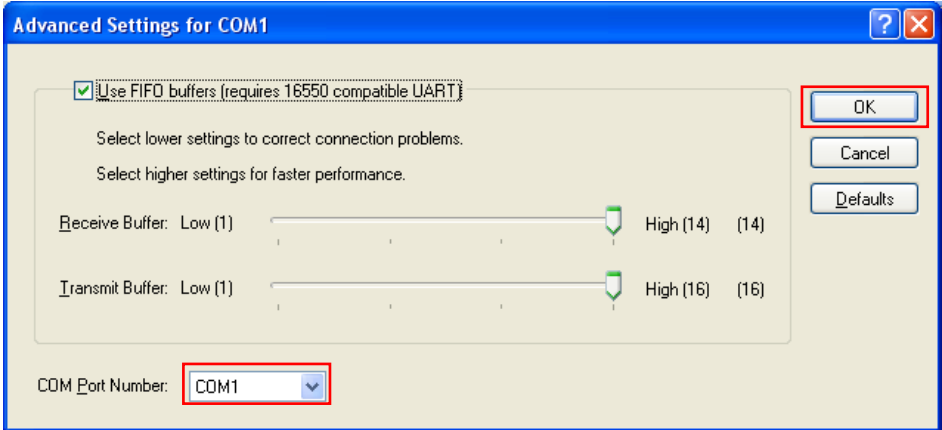
5. The following screen should show **Prolific USB-to-Serial Comm Port (COM3)**.



6. Double-click on this item and the following screen appears. Select the **Port Settings** tab, and then click the **Advanced** button.



7. Make sure that the **COM Port Number** is set to **COM1**, and then click **OK**.



A.2 Updating the Firmware

The firmware for Rainier is divided into:

- AX11015 firmware
- MB-1601 firmware
- CPLD firmware
- FPGA firmware

IMPORTANT:

- If you need to update all the firmware or just the AX11015 together with either MB-1601 / CPLD / FPGA firmware, make sure to perform the AX11015 firmware update first.
- The CPLD and FPGA firmware can be updated at the same time or individually.

AX11015 Firmware

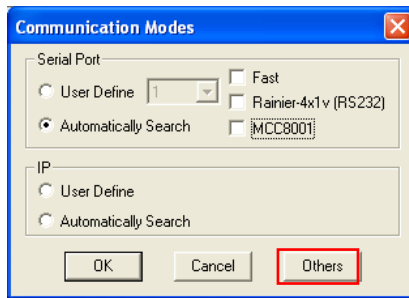
IMPORTANT: Before updating this firmware (CB RS232 / IP), make sure to disable the Windows Firewall settings for Galaxy software first (refer to the operating system's Help file for more details on setting Windows Firewall). When Windows Firewall is not disabled, upon power cycling (module power-on / off) the firmware upgrade process will stop on the Avitech logo screen (unable to upgrade the firmware).

To update the AX11015 firmware, perform the following steps:

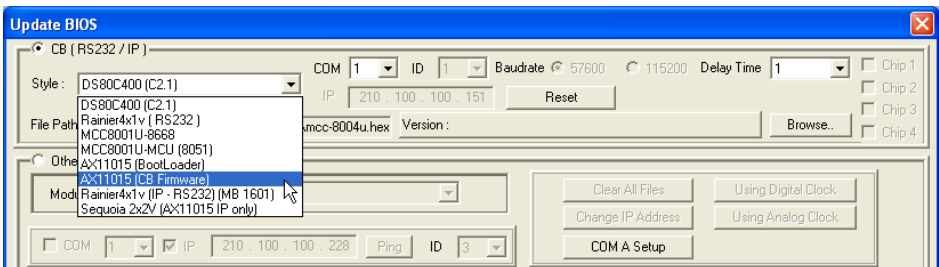
1. Connect the power cable to the **100-240V AC** power jack on the rear panel of the Rainier and the other end to an electrical outlet.
2. Use a serial (RS-232) cable and connect one end to the Rainier rear panel's **Keypad/RS-232** port and the other end to the computer's serial port side.
3. Connect the Ethernet cable between the Rainier rear panel's **IP** port to the computer's RJ-45 port.

NOTE: Make sure that the point-to-point network connection method is being used. Using this method would help prevent failure during the update firmware process.

4. Run the Galaxy software by double-clicking the “Galaxy-V31x.exe” file. Click **Others** when the following screen appears.

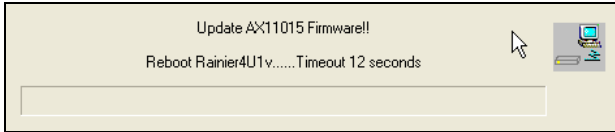


5. When the following screen appears, select **CB (RS232 / IP)** and on the **Style** drop- down menu, select **AX11015 (CB Firmware)**.

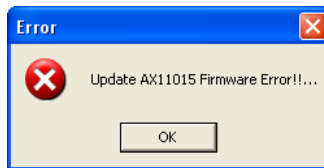


6. Click the **Browse** button to specify the location of the firmware file and select “AT-Rainierxxx-CB.bin” (where **xxxx** stands for your particular Rainier model for example **4U1V**).

7. Click the **Update** button located on the left lower portion of the screen.
8. When the next screen appears; pull off the power cord from the power jack to shutdown the Rainier. Next, re-attach the power cord to restart the Rainier within 15 seconds.



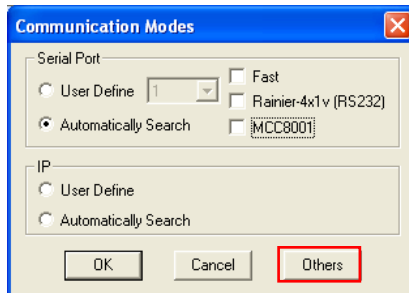
NOTE: Shutdown and startup of Rainier needs to be completed within 15 seconds. If not then the following error message will appear on screen. You will then need to redo steps 4 to 7 again to update the AX11015 firmware.



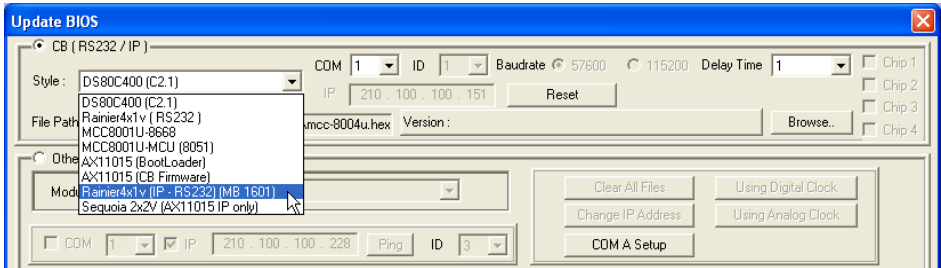
MB-1601 Firmware

To update the MB-1601 firmware, perform the following steps:

1. Run the Galaxy software by double-clicking the “Galaxy-V31x.exe” file. Click **Others** when the following screen appears.



- When the following screen appears, select **CB (RS232 / IP)** and on the **Style** drop-down menu, select **Rainier-4x1V (IP – RS232) (MB 1601)**.



- Click the **Browse** button to specify the location of the firmware file and select “AT-Rainierxxxx-MB1601.hex” (where **xxxx** stands for your particular Rainier model for example **4U1V**).
- Push the upper number **2** dip switch as well as the lower number **1** dip switch located on the Rainier’s rear panel downward to the **ON** position.



- Click the **Update** button located on the left lower portion of the screen.
- Push back the upper number **2** dip switch as well as the lower number **1** dip switch upward to the default position.
- Reboot (unplug and re-plug the power cord) the Rainier when the MB-1601 firmware update is successful.

NOTE: Shutdown and startup of Rainier needs to be done to completely update the MB-1601 firmware.

CPLD Firmware

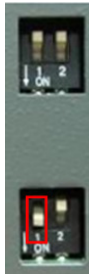
To update the CPLD firmware, perform the following steps:

1. Power on the Rainier module.
2. Connect the Ethernet cable between the Rainier rear panel's **IP** port to the computer's RJ-45 port.
3. Set the rotary **ID** located on the Rainier's rear panel to **F**.

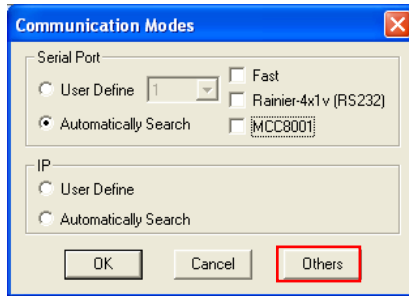


IMPORTANT: DO NOT set the rotary **ID** to **F** before powering on the Rainier module because update of CPLD firmware cannot work in "safe" mode.

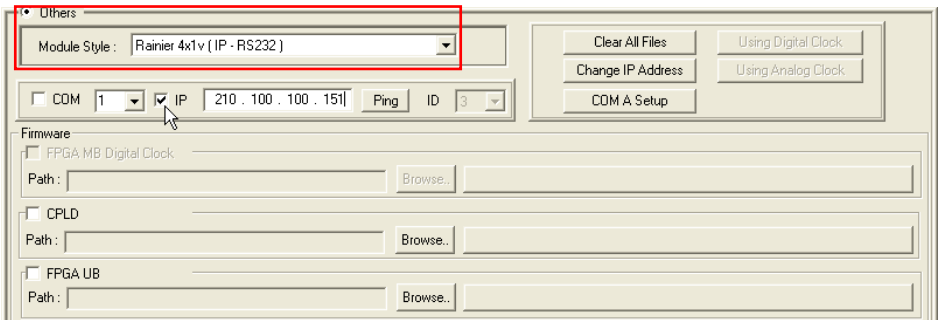
4. Push the lower number **1** dip switch located on the Rainier's rear panel downward to the **ON** position.



- Run the Galaxy software by double-clicking the “Galaxy-V31x.exe” file. Click **Others** when the following screen appears.



- When the following screen appears, select **Others** and on the **Module Style** drop-down menu, select **Rainier-4x1V (IP – RS232)**.



- Click to select the **IP** checkbox with the factory-default **210.100.100.151** value. In case you have changed the IP address of your Rainier, make sure to enter the correct IP address.

NOTE: In case you are not sure of your module’s IP address and want to find out, click **COM** and make sure that the COM port number is the same as the connected computer, then click the **Change IP Address** button to find out the IP address. Afterwards, click **Cancel** to exit.

- Click to select the **CPLD** checkbox, and then click the **Browse** button to specify the location of the firmware file and select “AT-Rainier4U1V-CPLD.jbc.”

The screenshot shows a software configuration window titled "Others". It contains several sections for configuring the device. The "Module Style" is set to "Rainier 4x1v (IP - RS232)". The "COM" port is set to 1, and the "IP" address is 210.100.100.151. The "CPLD" checkbox is checked, and the "Browse..." button next to its "Path" field is being clicked by a mouse cursor. Other options include "FPGA MB Digital Clock", "FPGA UB", and "FPGA A Setup".

- Click the **Update** button located on the left lower portion of the screen.
- Power off (unplug the power cord) the Rainier module when CPLD firmware update is successful.
- Push back the lower number **1** dip switch upward to the default position.
- Set the rotary **ID** located on the Rainier’s rear panel to the original setting.
- Power on (re-plug the power cord) the Rainier module.

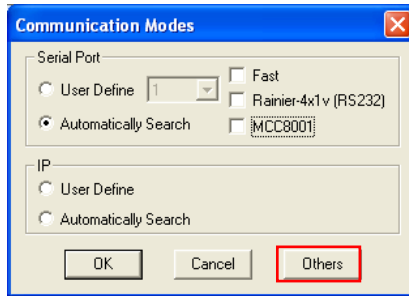
NOTE: Shutdown and startup of Rainier needs to be done to completely update the CPLD firmware.

FPGA Firmware

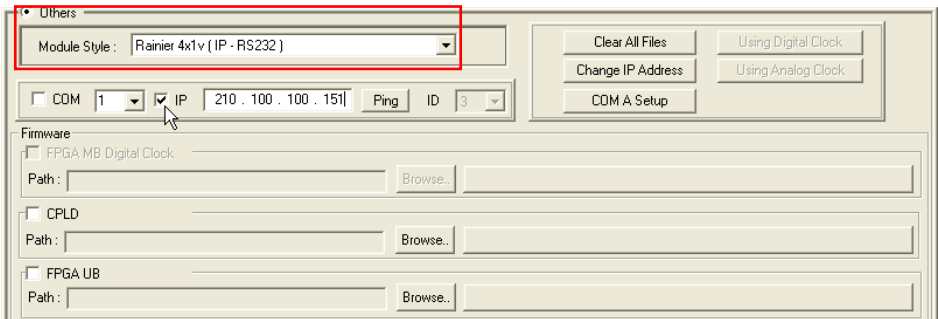
To update the FPGA firmware, perform the following steps:

- Connect the Ethernet cable between the Rainier rear panel’s **IP** port to the computer’s RJ-45 port.

- Run the Galaxy software by double-clicking the “Galaxy-V31x.exe” file. The following screen appears.



- Click **Others** and when the following screen appears, select **Others** and on the **Module Style** drop-down menu, select **Rainier-4x1V (IP – RS232)**.



- Click to select the **IP** checkbox with the factory-default **210.100.100.151** value. In case you have changed the IP address of your Rainier, make sure to enter the correct IP address.

NOTE: In case you are not sure of your module’s IP address and want to find out, click **COM** and make sure that the COM port number is the same as the connected computer, then click the **Change IP Address** button to find out the IP address. Afterwards, click **Cancel** to exit.

- Click to select the **FPGA UB** checkbox, and then click the **Browse** button to specify the location of the firmware file and select “AT-Rainierxxxx-UBFPGA.rbf” (where **xxxx** stands for your particular Rainier model for example **4U1V**).

- Click the **Update** button located on the left lower portion of the screen.
- Reboot (unplug and re-plug the power cord) the Rainier when FPGA firmware update is successful.

NOTE: Shutdown and startup of Rainier needs to be done to completely update the FPGA firmware.

A.3 Resetting to the Factory-Default State

To reset your Rainier module to the factory-default state, perform the following steps:

- Power-off the Rainier by unplugging the power cord.

2. Push the lower number **2** dip switch located on the Rainier rear panel downward to the **ON** position.



3. Power-on the Rainier by plugging in the power cord (make sure that power is available).
4. Push back the lower number **2** dip switch upward to the default position.